DRAFT

ENVIRONMENTAL ASSESSMENT
U.S. CUSTOMS AND BORDER PROTECTION
HOLDEN CANYON CONNECTOR ROAD PROJECT, TUCSON SECTOR

November 2024

Project Proponent: Department of Homeland Security
U.S. Customs and Border Protection

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ACRONYMS AND ABBREVIATIONS

AGFD	Arizona Game and Fish Department
AMM	Avoidance, Minimization, and Mitigation
APE	Area of Potential Effect
BA	Biological Assessment
CAA	California Clean Air Act
CBP	U.S. Customs and Border Protection
CBV	cross-border violator
CEQ	Council on Environmental Quality's
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
dBA	A-weighted decibels
DHS	U.S. Department of Homeland Security
EA	Environmental Assessment
EMA	Ecosystem Management Area
EPA	Environmental Protection Agency
FONSI	Finding of No Significant Impact
Forest Plan	2018 Coronado National Forest Land and Resource Management Plan
Forest Service	U.S. Forest Service
FR	Forest Road
GHG	greenhouse gas
GWP	Global Warming Potential
IBA	Important Bird Area
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act of 1996
IRA	Inventoried Roadless Area
LWC	low-water crossing
MOU	memorandum of understanding
MT CO_2E	metric tons of carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFS	National Forest Service
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NRHP	National Register of Historic Places
O_3	oxygen
Pb	lead
PBF	physical and/or biological features
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 micrometers or less
ppb	parts per billion

ppm	parts per million
Proposed Action	Holden Canyon Connector Road Project
RECON	RECON Environmental, Inc.
ROS	Recreation Opportunity Spectrum
SC-GHG	social cost of GHG
SHPO	State Historic Preservation Office(r)
SIO	Scenic Integrity Objectives
SIP	State Implementation Plan
SO_2	sulfur dioxide
USBP	U.S. Border Patrol
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The U.S. Customs and Border Protection (CBP), in cooperation with the U.S. Forest Service (USFS) under the U.S. Department of Agriculture (USDA), are proposing to improve, repair, and construct approximately 12.43 miles of unpaved road within the Coronado National Forest Nogales Ranger District located in Santa Cruz and Pima counties, Arizona (Proposed Action, Holden Canyon Connector Road; Figure 1.1). Approximately 8.68 miles of the proposed Holden Canyon Connector Road consists of Mojonera Canyon Road (Forest Road [FR] 216A, Sierra Canyon (FR 4168), Saucito Tank Road (FR 4169), Sentinel Peak Road (FR 4167), and closed road and trail segments (closed road and trail segments would require significant improvement; Figures 1.2 and 1.3). Mojonera Canyon Road, Sierra Canyon Road, and Saucito Tank Road to the west of Holden Canyon and Sentinel Peak Road to the east of Holden Canyon average approximately 10 feet in width and contain numerous road switchbacks and tight bends (see Figures 1.2 and 1.3). Approximately 3.75 miles of the proposed road consist of undeveloped areas that would require new road construction (see Figures 1.2 and 1.3). CBP would fund the Proposed Action and USFS would be responsible for final design and construction of the road. CBP and USFS are joint lead agencies for the Proposed Action.

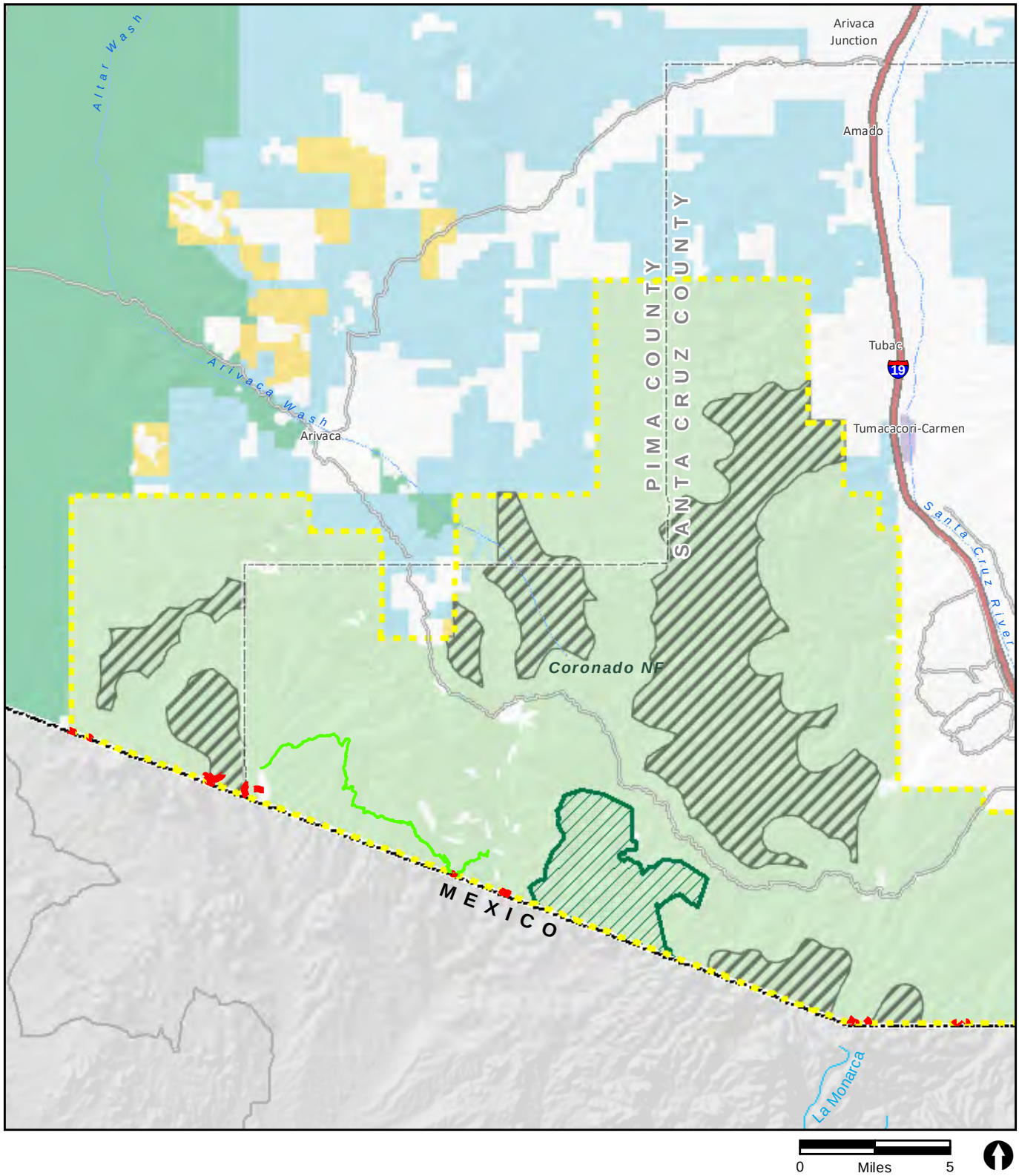
The Proposed Action also includes the decommissioning of approximately 3.57 miles of USFS road segments that are no longer needed for patrol or access (see Figures 1.2 and 1.3). Decommissioning of these road segments would offset the development of the approximately 3.75 miles of new road construction so there is no overall net increase of road miles within the Nogales Ranger District. Proposed decommissioned road segments are located in Santa Cruz and Pima counties, Arizona (see Figures 1.2 and 1.3). The Proposed Action is located within the U.S. Border Patrol (USBP) Tucson Sector.

1.2 PROJECT LOCATION

The Proposed Action is located within the Tumacacori Ecosystem Management Area (EMA) of the Nogales Ranger District in Santa Cruz and Pima counties, Arizona (see Figure 1.1). The project area is located south of Arivaca, Arizona, north of the U.S.-Mexico international border, west of Interstate 19 and east of the U.S. Fish and Wildlife Service (USFWS) Buenos Aires National Wildlife Refuge (see Figure 1.1). The proposed decommissioned road segments are located primarily within Santa Cruz County, with five segments located within Pima County to the west (see Figure 1.1).

The proposed Holden Canyon Connector Road is approximately 12.43 miles located within Township 23S Range 10E: Sections 03, 04, 05, 07 ,08, 09, 10, 15, 16, 22, 23, 24, and 25, and Township 23S Range 11E: Section 30, Gila-Salt River Meridian. The proposed decommissioned road segments are located within Township 23S Range 10E: Sections 08, 09, 15, 16, 17, 12, 22, 23, 25, and 26, and Township 23S Range 11E: Sections 30 and 32, Gila-Salt River Meridian.

Coordinates for all road segments can be found in Appendix A (Table A.1).



- Proposed Holden Canyon Connector Road Project Area
- Proposed Decommissioned Roads
- Nogales Ranger District
- US/Mexico International Border
- US Forest Service (USFS)
- US Forest Service Tumacacori EMA
- US Fish & Wildlife Service (USFWS)
- Bureau of Land Management (BLM)
- State
- Private or Unknown
- Pajarita Wilderness Area
- Inventoried Roadless Area

FIGURE 1.1
Regional Location

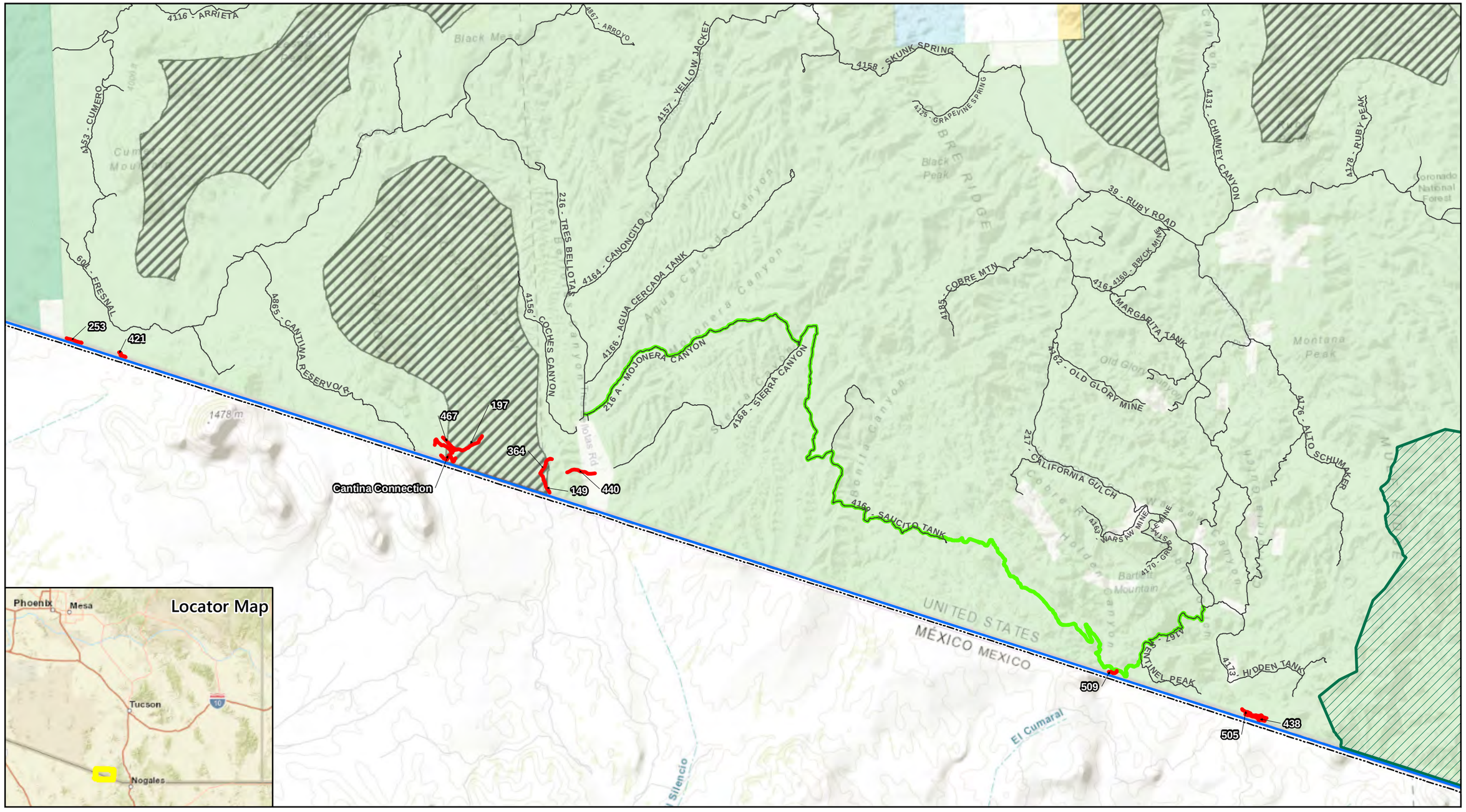
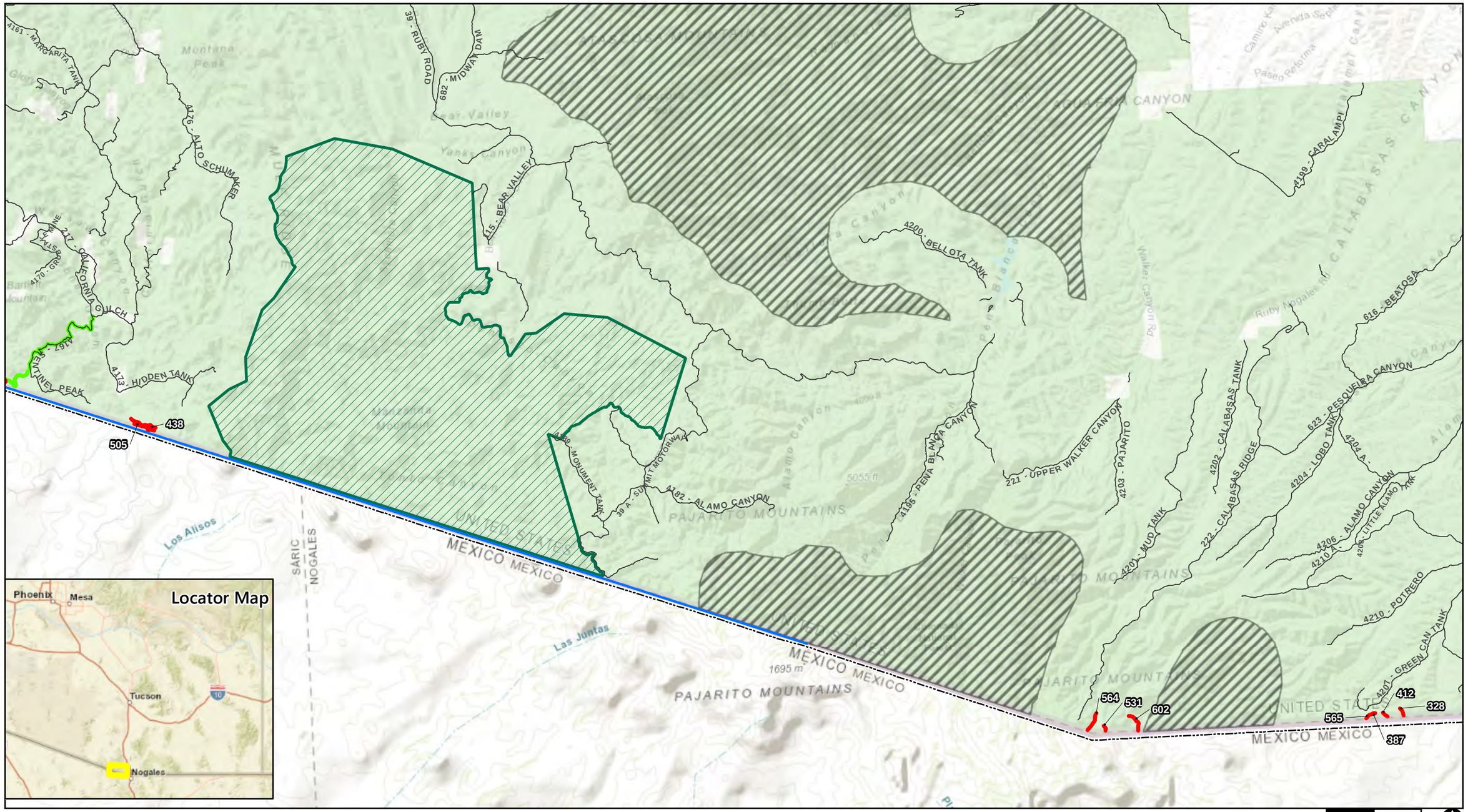


FIGURE 1.2
Proposed Holden Canyon Connector Road Project Area – Western Extent



Proposed Holden Canyon Connector Road Project Area
Proposed Decommissioned Roads
Existing Forest Service Roads
Border Road
US/Mexico International Border
US Forest Service Tumacacori EMA
Private or Unknown
Pajarita Wilderness Area
Inventoried Roadless Area

FIGURE 1.3
Proposed Holden Canyon Connector Road Project Area – Eastern Extent

1.3 PURPOSE AND NEED

Congress has provided to the Secretary of Homeland Security a number of authorities necessary to carry out the U.S. Department of Homeland Security's (DHS's) border security mission. One of those authorities is Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as amended (IIRIRA). In Section 102(a) of IIRIRA, Congress provided that the Secretary of Homeland Security shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of cross-border violators [CBVs]) in the vicinity of the U.S.-Mexico international border to deter illegal crossings in areas of "high illegal entry" into the U.S. In Section 102(b) of the IIRIRA, Congress called on the Secretary of Homeland Security to construct reinforced fencing on the southwest border and provide for the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwest border.

DHS, through its constituent components, is statutorily mandated to control and guard the nation's borders and boundaries, including the entirety of the northern and southern land and water borders of the U.S. CBP is the DHS component that is primarily responsible for border security. The USBP is part of CBP. USDA, through its constituent bureaus (including USFS), is statutorily charged as a manager of Federal lands throughout the U.S., including USDA lands in the vicinity of international borders that are administered as wilderness areas, conservation areas, national forests, or wildlife refuges.

In 2006, USDA, including USFS, signed a memorandum of understanding (MOU) with DHS, including CBP. In the 2006 MOU, USDA recognizes that, pursuant to applicable law, CBP is authorized to access the Federal lands under USDA administrative jurisdiction and will do so in accordance with existing authorities. CBP may request, in writing, that the land management agency authorize installation or construction of tactical infrastructure, including roads, for detection of CBVs, on USDA-administered land in order to interdict CBVs as close as possible to the U.S.' international borders, in accordance with the USBP Strategic Plan (DHS et al. 2006). The 2006 MOU states that CBP will cooperate with USDA to identify routes and coordinate the placement of tactical infrastructure in order to limit resource damages while maintaining operational efficiency.

The Proposed Action would connect the area between Holden Canyon and Warsaw Canyon, near the U.S.-Mexico international border. This area is approximately 10 miles southeast of the town of Arivaca, Arizona, and is only accessible from the north by two main access National Forest System (NFS) roads (Figure 1.4). Currently, there are no available east/west roads that connect the two canyon areas. The limited east/west road access north of the border in the Holden Canyon area has constrained USBP agents' abilities to respond to this area safely and efficiently. In order to access the eastern portion of the Holden Canyon area from the west, USBP agents must drive north on Tres Bellotas Road (FR 216), south on Ruby Road, and south on California Gulch Road (FR 217), a distance of approximately 24 miles that typically takes approximately 60 minutes to complete (see Figure 1.4). From California Gulch Road, agents may need to continue on foot in order to patrol the area. This extended response time requires additional resources, additional manpower hours, and hampers agent effectiveness as they are delayed.

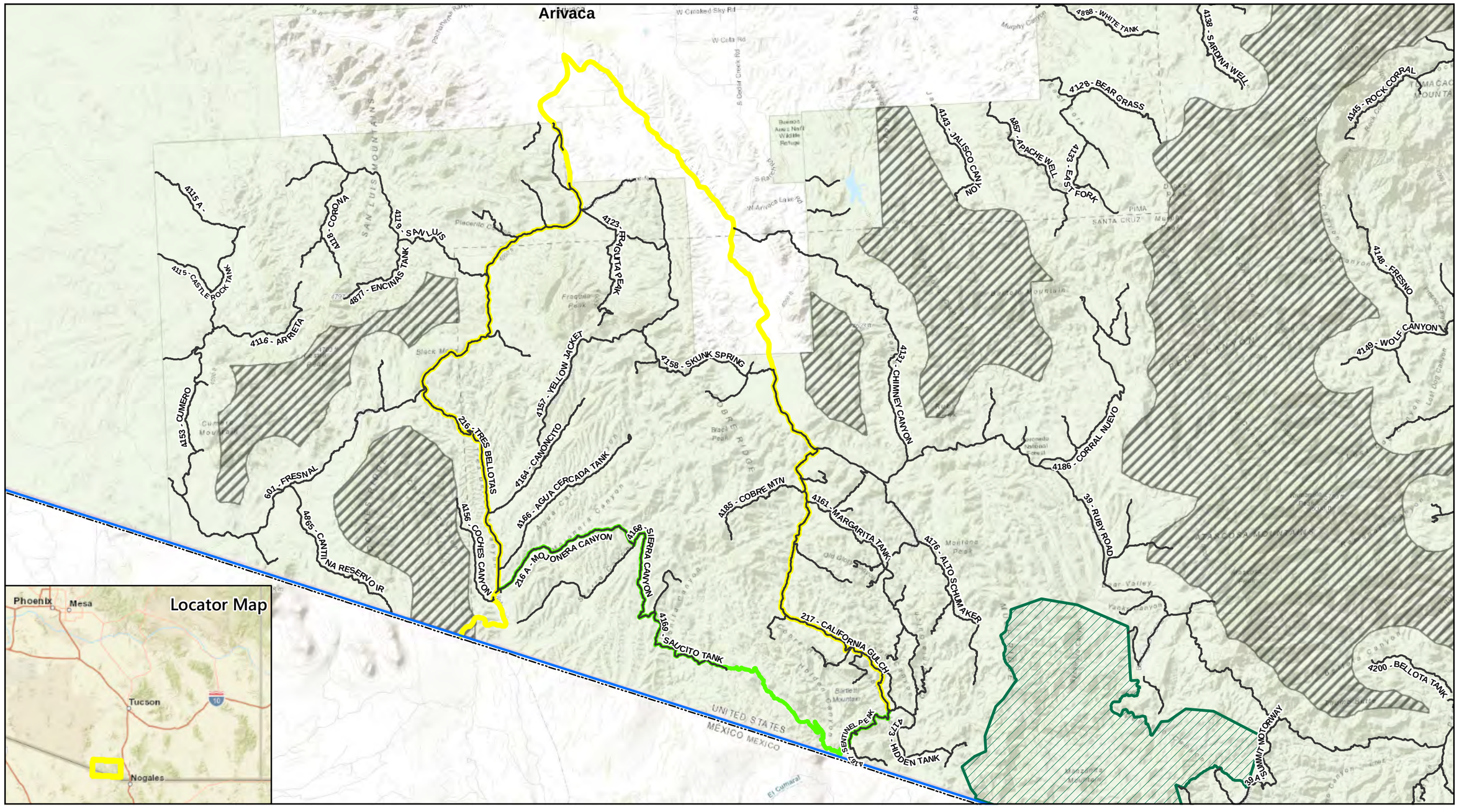


FIGURE 1.4
Existing CBP Patrol Routes Around the Holden Canyon Area

The few uneven, difficult-to-maintain, unpaved, ranch roads in the area have made CBV detection, response, and resolution extremely difficult. The purpose of the Proposed Action is to improve mobility and accessibility for USBP agents responding to and seeking to prevent illegal cross-border traffic, address emergencies involving public health and safety, and prevent or minimize environmental damage arising from occurrence of and response to CBV illegal entry on public lands. The need for the Proposed Action is to support CBP in meeting its mission objectives of providing border security, ensuring the highest probability of apprehending illegal entries, thus preventing terrorists and terrorist weapons from entering the U.S.; detecting, apprehending, and deterring smugglers of humans, drugs, and other contraband; and enhancing agents' response time. The Proposed Action would also provide a safer work environment for USBP agents. The need for the Proposed Action is also to improve safety concerns related to the use of nearby recreational and public use areas by CBVs for transportation and staging purposes.

The proposed improvement, repair, and construction of these 12.43 miles of road that would connect Holden Canyon and Warsaw Canyon east-to-west also addresses objectives, standards, guidelines, and desired conditions within the 2018 Coronado National Forest Land and Resource Management Plan (Forest Plan) related to international border security, recreation and emergency access, and resource protections. Recreational uses that are likely to occur in the Proposed Action area include, but are not limited to, hunting, all-terrain vehicle use, and wildlife viewing. The proposed road would also provide USFS with improved access and response times when called upon to respond to fire and rescue events in the rugged canyon terrain of this roaded backcountry area. The proposed road would help to improve rancher relations as it would limit USBP's need to traverse areas further north and allow them to dedicate their efforts to the border area. The proposed decommissioning of 3.57 miles of road would offset the 3.75 miles of proposed new road construction and reduce CBP and public access into areas with sensitive resources.

1.4 COMPLIANCE WITH U.S. FOREST SERVICE LAND MANAGEMENT PLAN MANAGEMENT DIRECTION

1.4.1 Coronado National Forest Land and Resource Management Plan Consistency

The Proposed Action is consistent with law, regulation, and policy applicable to the administration of the 2018 Coronado National Forest Land and Resource Management Plan (Forest Plan; USFS 2018a). The proposed Holden Canyon Connector Road is located within a Roaded Backcountry area. The Forest Plan guidelines for Roaded Backcountry areas state, "New roads may be constructed, reconstructed, or relocated for a variety of public and administrative uses and needs" (USFS 2018a, page 100). As detailed in Chapter 5 of the Forest Plan, Suitability of Uses and Special Use Permits, Roaded Backcountry areas are suitable for use by CBP/USBP for activities such as foot, equestrian, vehicular and aerial patrols, vehicle mounted camera deployment, and forward operating camps (USFS 2018a, pages 172-173, Table 18).

The proposed Holden Canyon Connector Road would provide expanded access for recreation, emergency response/rescue, and patrol of the international border. Relevant Desired Conditions and Management Approaches from the Forest Plan are noted below:

- Public Access – Desired Conditions: Permanent legal access to and within the Coronado National Forest for public and administrative users is available and easily accessible on a

system of forest arterial, collector, and local roads and trails that are interconnected with public roads, highways, and trails (local, county, State, and other Federal) adjacent to, adjoining, and within the national forest.

- Motorized Transportation System – Desired Conditions: Road surfaces are primarily rough or primitive, but most are available for use by the more experienced traveler with a high ground-clearance vehicle. These roads provide opportunities in appropriate places for safe, responsible motorized recreation and provide varying backcountry touring experiences for a variety of vehicle classes. The existing road system provides adequate access for resource management activities, sufficient legal public access to the Coronado National Forest and its amenities such as campgrounds and trailheads, and access for homeland security purposes near the international border.
- Motorized Transportation System – Guidelines 4: Construction of roads across highly erodible soils and areas of high and very high scenic integrity should be avoided unless as needed to meet statutory requirements, such as mining law or laws to protect public health and safety.
- Recreation – Desired Conditions: Opportunities exist for motorized recreation where designated, with varying experiences for a variety of vehicle classes. Forest visitors can enjoy semi-primitive motorized recreation and explore the backcountry in off-highway vehicles along designated routes.
- Recreation – Management Approach 8: Working closely with DHS and USBP to manage recreation settings near the international border to ensure visitor safety and reduce associated impacts such as trail damage and litter (especially in high use recreation areas such as Cave Creek, Madera Canyon, Pena Blanca Lake, Parker Canyon Lake, and Carr Canyon).
- Recreation – Management Approach 16: Exploring options for improving off-highway vehicle opportunities by developing or connecting motorized trails.
- Tumacacori EMA – Desired Conditions Objective 1: Every 10 years treat the vegetation using wildland fire (planned and unplanned ignitions), prescribed cutting, and mastication on at least 25 percent of the Tumacacori EMA to create resiliency to disturbances. One-third of this treatment should target the area east of the Goodding Research Natural Area to Nogales, from the international border to the vicinity of Ruby Road. Treatments will be consistent with the objectives for forestwide vegetation communities and resources.
- Roaded Backcounty Land Use Zone – Desired Conditions: NFS roads provide access to trailheads; remote, undeveloped camping areas; and occasionally developed recreation facilities or administrative sites. Most roads are unpaved. Forest visitors can enjoy semi-primitive motorized recreation and explore the backcountry in off-highway vehicles along designated roads or motorized trails.

There are highly erodible soils within one decommissioned road segment (0.21 acre). This area would be an avoidance area, no decommissioning activities would occur within portions of the road segment with highly erodible soils. The ends of the road segment would be barricaded to prevent motorized travel onto the roadway to minimize potential disturbance (see Section 2.2.2

for more detail on proposed road decommissioning). Decommissioning of this road segment would be in compliance with the Forest Plan.

The proposed new road segment would be located within the Roaded Backcountry land use zone and vehicle related patrols would be in compliance with this zone. A portion of the proposed new road segment (approximately 2.0 miles) would also be located within the Semi-primitive Non-motorized Recreation Opportunity Spectrum class; however, this class is referenced for recreation planning projects only, with the land use zone of Roaded Backcountry referenced for management and Forest Plan compliance.

Five of the proposed decommissioned roads under the Proposed Action are located within the Tumacacori Inventoried Roadless Area (IRA). Under the 2001 Roadless Rule (USFS 2001), timber harvesting, road construction, or road reconstruction in IRAs are prohibited except under specified conditions. The 2001 Roadless Rule also specifies that activities that do not require the construction of new roads will be allowed, such as motorized uses of existing roads, off-highway motorized use in specified areas, livestock grazing, and energy and mineral development. The 2001 Roadless Rule also requires analysis of potential impacts of activities within IRAs (Requirements for Work in IRAs and Regional Forester Review). This analysis has been completed for the proposed decommissioning of the five roads found within the Tumacacori IRA. Findings of the analysis determined that the proposed decommissioning activities were not prohibited under the 2001 Roadless Rule and anticipated effects to roadless characteristics were nominal and beneficial due to the closure/decommissioning of road segments to vehicle use.

Relevant Forest Plan Desired Conditions related to IRAs are noted below:

- Motorized Transportation System – Standards: Within inventoried roadless areas, roadless character shall be maintained.

1.4.2 Travel Management Rule

In 2005, USFS published the final Travel Management Rule, which requires all national forests to designate a system of roads, trails, and areas that are open to motor vehicle use by the public. It also prohibits the use of motor vehicles on roads and in areas (cross-country) that are not part of the travel management system (36 Code of Federal Regulations [CFR] Part 212). The Coronado National Forest is currently conducting the Travel Management Planning National Environmental Policy Act (NEPA) process and finalizing its transportation system for each of its five ranger districts under the Travel Management Rule mandate.

The Nogales Ranger District has completed a Travel Analysis Plan for the Tumacacori EMA and has conducted NEPA analysis on the future motorized transportation system in the Nogales Ranger District. The proposed Holden Canyon Connector Road would be incorporated into the Nogales Ranger District's transportation system, as appropriate.

1.4.3 Nogales Travel Management Environmental Assessment

As detailed in the Nogales Travel Management Plan Environmental Assessment (EA; USFS 2016):

> Border Patrol Needs: U.S. Border Patrol (USBP) has a need to enforce illegal immigration and drug trafficking laws in areas affected by travel management. This may involve the need to expand access to newly created routes that emerge as foot traffic moves north from the international border. The situation is uncertain in terms of the volume of traffic and the location of new routes, therefore a continuous dialogue and coordination with the BP will be necessary to "stay ahead of the curve" and provide the required access while safeguarding the resource.

1.4.4 Memorandum of Understanding Among U.S. Department of Homeland Security and U.S. Department of the Interior and U.S. Department of Agriculture Regarding Cooperative National Security and Counterterrorism Efforts on Federal Lands along the United States' Border

Guidance regarding DHS's CBP division's use of roads on Coronado National Forest is primarily contained in the National MOU between the U.S. Department of the Interior, USDA, and DHS, signed on March 31, 2006 (DHS et al. 2006). The MOU emphasizes a cooperative position be taken by each department while emphasizing the importance of controlling illegal cross-border traffic.

1.5 APPLICABLE ENVIRONMENTAL GUIDANCE, STATUTES, AND REGULATIONS

This EA was prepared in compliance with NEPA of 1969 as amended (42 U.S. Code 4321, et seq.), the Council on Environmental Quality's (CEQ) NEPA implementing regulations (40 CFR §§ 1500–1508), DHS Directive Number 023-01, Rev.01, and DHS Instruction Manual 023-01-001-01, *Implementation of the National Environmental Policy Act*. Recent changes to the CEQ regulations implementing NEPA became effective on September 14, 2020. 85 Fed. R. 43304-76 (July 16, 2020). As stated in 40 CFR § 1506.13, the new regulatory changes apply to any NEPA process begun after September 14, 2020, and this EA conforms to these CEQ NEPA implementing regulations.

1.6 DECISION TO BE MADE

The Nogales District Ranger is the Responsible Official for the USFS decision. The Executive Director of the Program Management Office Directorate, USBP and the Deputy Director, Facilities Management and Engineering, Office of Facilities and Asset Management, CBP are the Responsible Officials for the CBP decision. Based on the results of the environmental analysis, the USFS Nogales District Ranger and CBP would issue decision documents that include a determination of the significance of the environmental effects and whether an Environmental Impact Statement would be prepared. The decisions would also include a determination of consistency with the Forest Plan, National Forest Management Act, NEPA, and applicable laws, regulations, and Executive Orders.

If the Nogales District Ranger determines it is not necessary to prepare an Environmental Impact Statement, the Nogales District Ranger would decide whether or not to authorize the Proposed Action. If the Nogales District Ranger authorizes the proposed Holden Canyon Connector Road project, the Ranger would determine which management actions, mitigation measures, and monitoring requirements would be prescribed. CBP's decision will also be based on the environmental analysis and its decision as to whether it is necessary to prepare an Environmental Impact Statement and/or move forward with the Proposed Action, which will be made in coordination with the Nogales Ranger District.

This EA presents the findings of the environmental analysis of implementing the Proposed Action and alternatives, to facilitate public understanding and engagement and informed decision making. This analysis incorporates by reference (in accordance with 40 CFR §1502.21) the project record, including the archeological resource survey report, biological resources survey report, and other technical documentation used to support analyses, summarized herein.

1.7 PUBLIC INVOLVEMENT

CBP and USFS are committed to communicating with the public to help ensure that potentially affected communities and other interested parties understand the Proposed Action and are given opportunities to participate in decisions that may affect them. CBP and USFS invite public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. CBP and USFS urge all agencies, organizations, Tribes, and members of the public having a potential interest in the Proposed Action to participate in the decision-making process.

DHS Instructional Manual 023-01-001-01, Revision 01, and the USFS NEPA Handbook (Forest Service Handbook 1909.15) provide guidance on public participation opportunities with respect to this EA and decision making on the Proposed Action. CBP and USFS conduct public involvement consistent with their respective guidance and procedures.

This Proposal was first listed on the Coronado National Forest's Schedule of Proposed Actions on July 1, 2023. This schedule is available electronically at: https://www.fs.usda.gov/sopa/forest-level.php?110305.

1.7.1 Scoping

CBP and USFS initiated scoping for the Proposed Action by distributing a scoping letter with a brief description of the Proposed Action for the public on September 22, 2023. Maps and other project-related information were posted on the agency project webpages at: https://www.fs.usda.gov/project/?project=64326 or https://www.cbp.gov/about/environmental-management.

A legal notice announcing the start of the 30-day scoping period was published on September 23, 2023, in the *Nogales International* newspaper. An email announcing the official scoping period for this project was sent to 298 individuals and organizations, including Federal, State, and local agencies, Tribal leaders, and other interested parties and 28 of the same letters were sent through the U.S. Postal Service.

The scoping process generated 24 comment letters, 2 from the Tohono O'odham, 1 from the Pascua Yaqui Tribe, 3 from non-government organizations, and 18 from the public. CBP and USFS reviewed all comments received in order to identify and evaluate issues. Some issues raised in comments were dismissed from analysis in this EA because they were (1) outside the scope of the Proposed Action and not relevant to the decisions being made; (2) already decided by law, regulation, or other higher-level decision; and/or (3) conjectural and not supported by scientific or factual evidence. Some issues were resolved by developing project design features that were incorporated into the proposed action. Issues that could not be completely resolved through project design features were carried forward as key issues for detailed analysis in this EA (Appendix B).

Topics of concern from the scoping comments include the following:

- **Biological Resources:** Comments related to potential impacts to biodiversity, migratory wildlife, game species, and USFS special status species. Concerns related to wildlife movement corridors, migration, and habitat fragmentation impacts.
- **Border Security:** Comments related to support and opposition to border security measures, including roads.
- **Cumulative Impacts:** Requests that past and future projects be fully analyzed under potential cumulative impacts and cumulative impacts should be fully analyzed in the EA. Concerns related to cumulative impacts to cultural resources, federally listed threatened and endangered species, and critical habitat. Comments requested that cumulative impact analysis should consider potential increase of wildfires, spread of invasive species, mining, livestock grazing, recreation, and other CBP projects in the area.
- **Cultural Resources:** Concerns that the proposed road would impact cultural resources and important ancestral sites.
- **Fire and Fuels:** Concerns related to roads and potential for increase wildfire occurrence as well as potential increase of invasive species and recreational use that may increase potential for wildfires.
- **Hydrology:** Concerns related to impacts to hydrologic functions.
- **Monitoring:** Request for long-term monitoring of decommissioned roads.
- **NEPA Process:** Request for full analysis of all direct, indirect, and cumulative impacts in the EA. Request for consistency with the Forest Plan and any related USFS planning documents. Request for consideration of a full range of alternatives. Requests for additional time to review scoping materials. Requests for preparation of an Environmental Impact Statement.
- **Recreation:** Comments related to support for improved recreational opportunities, including hunting, off-highway vehicle use; concerns related to access and future road closures.

- **Traffic/Access:** Concerns related to potential increase in traffic along existing and proposed roads and impacts of road construction. Request for posting of speed limit signs. Requests for consideration of illicit traffic and smuggling activities along the International Border Barrier. Support and objections to proposed road to improve access.

- **Threatened and Endangered Species:** Comments that the EA evaluate impacts to jaguar, Mexican spotted owl, ocelot, yellow-billed cuckoo, Sonoran chub, Gila topminnow, Chiricahua leopard frog, listed plants, and critical habitats. Requests to conduct consultation with USFWS under Section 7 of the Endangered Species Act.

- **Scenery/Visual Resources:** Concerns related to impacts to visual/scenic resources.

1.7.2 Public Review of Draft EA

The Draft EA and CBP Draft Finding of No Significant Impact (FONSI) are available for public review for 30 days. CBP typically makes the Draft CBP FONSI available for public review at the same time as availability of the Draft EA. Under the USFS process, the Draft USFS FONSI will be made available for public review when the Final EA is made available and during the objection process.

The Notice of Availability was published in the *Nogales International*. Copies are available by request at the Caviglia-Arivaca Library, 17050 West Arivaca Road, Arivaca, AZ 85601 (520-594-5235) and at the Nogales-Rochlin Public Library, 518 North Grand Avenue, Nogales, AZ 85621 (520-285-5717). A copy of the Notice of Availability text will be included in the Final EA. The Draft EA and Draft CBP Finding of No Significant Impact are available electronically at: holdencanyonconnectorroad@cbp.dhs.gov.

The Draft EA is also available electronically on the Coronado National Forest Projects page at: https://www.fs.usda.gov/project/?project=64326.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 ALTERNATIVE A: NO ACTION ALTERNATIVE

The No Action Alternative is included as an alternative to the Proposed Action, in accordance with CEQ requirements (40 CFR §1502.14[d]). Under the No Action Alternative, current management plans would continue to guide management of the existing road network. The proposed Holden Canyon Connector Road would not be constructed and use of the existing roads in the area of Holden Canyon would continue in the same manner. USBP would continue to experience difficulty patrolling the area due to the gaps within the existing road network requiring out-of-the-way travel to access the Holden Canyon area, with some areas accessible only by foot or horseback. Additionally, safety issues in the Holden Canyon area related to CBV illegal entry would continue, such as smuggling activities and the use of public lands and recreation areas for smuggling activities, as well as health emergencies requiring rescue efforts by CBP or other law enforcement agencies in roadless areas.

The No Action Alternative forms the baseline against which the potential impacts of the Proposed Action and any other action alternatives are compared. Thus, it includes current actions and activities in the existing road network.

2.2 ALTERNATIVE B: PROPOSED ACTION ALTERNATIVE

Under the Proposed Action, CBP, in cooperation with USFS Coronado National Forest Nogales Ranger District, proposes to improve, repair, and construct approximately 12.43 miles of road to provide enhanced access for USBP activities in the Holden Canyon area. The Proposed Action also includes decommissioning of approximately 3.57 miles of road segments no longer needed for patrol and access in the vicinity of the Holden Canyon area and the international border. The Proposed Action is detailed below.

2.2.1 Holden Canyon Connector Road

The 12.43-mile road would consist of the following:

- Improvement and repair of approximately 8.68 miles of Mojonera Canyon Road (FR 216A), Sierra Canyon Road (FR 4168), Saucito Tank Road (FR 4169), Sentinel Peak Road (FR 4167), and currently decommissioned road and trail segments (closed road and trail segments would require significant improvement; Figures 2.1 through 2.20, Appendix A). Coordinates for all roads can be found in Table A.1, Appendix A.
- New construction of a Maintenance Level 2 road of approximately 3.75 miles within an undeveloped area (see Figures 2.9 through 2.13 and Table A.1, Appendix A).

Equipment staging areas would be located within the existing road or disturbed areas, no staging areas would be created, and no new disturbance would occur for staging areas. Equipment needed to improve, repair, and construct the proposed road would include trackhoes, bulldozers, dump trucks, graders, compactors, loaders, and similar heavy equipment. A water tender would also be used for compaction of the road surface and dust abatement during construction. Approximately three to five heavy equipment operators would be working at any given time.

Access to the area would be via existing roads and no temporary roads would be necessary for project implementation. Once the improvement, repair, and construction phases are completed, maintenance of the proposed road would be on an "as-needed" basis or in the event of emergency situations that require repair. CBP would fund road improvements, repairs, construction, and maintenance. USFS would be responsible for preparing the final road design, and conducting the improvements, repairs, construction, and maintenance work.

The proposed Holden Canyon Connector Road would be designated as open to public motor vehicle access (Maintenance Level 2 road for high-clearance vehicles). The proposed road would generally have low patrol traffic volume (averaging about two to three patrols per day) with low-speed use and low public use volume consisting primarily of hunters and all-terrain vehicles.

The timeline for Proposed Action activities, including improvement, repair, and construction, as well as road decommissioning, would be approximately six months over the fall/winter season (October 1 through March 30).

Existing Road Segments

The existing road segments (8.68 miles) would be improved and repaired to USFS Road Maintenance Level 2 standards. Maintenance Level 2 roads are intended for travel of high-clearance vehicles and not passenger vehicles. Based on the road engineering design, the approximate potential ground disturbance area for the proposed road improvement and repair segments (within existing or closed roads) would be approximately 14.60 acres, predominantly within the existing road use and disturbed area.

The guidelines for Maintenance Level 2 roads are as follows:

- **Traveled Way:** Log out and brush away only as necessary to provide for high-clearance vehicles. Maintain road prism for drainage and to provide for passage of high-clearance vehicles. Traveled way should only be bladed (with bulldozer) to maintain drainage functionality and not to provide a smooth surface for passenger cars.
- **Shoulder:** Shoulder is usually not defined and maintenance is not required unless necessary to maintain structural integrity of the roadway, drainage functionality, or access by high-clearance vehicles.
- **Drainage:** Drain as necessary to keep drainage facilities functional and prevent unacceptable environmental damage while maintaining passage for high-clearance vehicles.
- **Roadway:** Remove or ramp-over slides and repair slumps as needed to provide access for high-clearance vehicles and to control resource damage.
- **Roadside:** Generally, no work is required unless necessary to provide clearance for existing traffic. Fallen trees may be left in place if not an obstacle to safe passage of intended traffic.
- **Structure:** Maintain all structures to provide for the passage of high-clearance vehicles and to protect natural resources.
- **Traffic Service:** Install and maintain route markers. Maintain warning, regulatory, and guide signs, and other traffic control devices as warranted in the sign plan to provide for existing traffic and the appropriate traffic management strategy. Generally, few, if any, signs or other traffic control devices are required.

There is one avoidance area within an existing road segment with resources sensitive to disturbance (avoidance areas, see Figure 2.14, Appendix A). Within this avoidance area, the road would continue to be used for patrol and access; however, minimal road improvement or repair would occur to avoid potential impacts to the sensitive resource surrounding the existing road.

Road dips would continue to be used within the existing road segments as the preferred drainage treatment. Currently there are no low-water crossings (LWCs) with concrete mats or reinforced concrete or rock within existing road segments.

Proposed New Road Segment

The proposed new road (3.75 miles) would be engineered to conform to the USFS Maintenance Level 2 guidelines, native surfaced (constructed of on-site soil materials), and be suitable for high-clearance vehicles. The road would be approximately 14 feet wide in most areas (12-foot travel way with 1-foot shoulders). In areas requiring road switchbacks and cuts along slopes, a wider road area would be needed, and slopes may require reinforcement (see Figures 2.9 through 2.13, Appendix A).

A cattle guard would be needed along FR 4169 to keep livestock from moving between allotments (see Figure 2.9, Appendix A). The cattle guard would be a metal structure. Metal cattle guards are constructed over a pit, with treated timbers or concrete for the foundation, concrete or rock on either side, and open for drainage (approximate design, Figure 2.21, Appendix A).

USFS developed a road disturbance area based on slopes and other topography along the proposed road alignment. Ground disturbance for the proposed new road segment construction area would be approximately 14.83 acres based on preliminary design. Calculations assumed a generally 14-foot-wide road plus fill and cut slopes as needed (see Figures 2.9 through 2.13, Appendix A). Fills constructed with a 2:1 or flatter slope typically promote growth of vegetation and provide slope stability (approximate design; Figure 2.22, Appendix A; Keller and Sherar 2003). Final design of the road would determine road widths and shoulder reinforcements needed but would stay within the preliminary design disturbance area. Ground disturbance would be limited to the approximately 14-foot-wide road area.

One LWC would be needed where the proposed new road segment crosses the Holden Canyon drainage area (see Figure 2.12, Appendix A). The LWC structure would be a concrete vented ford (crossing) that would have a driving surface elevated above the streambed with culverts (vents) that enable low flows to pass beneath the roadbed. The vents may be one or more pipes or box culverts. The vented LWC would be built to avoid upstream ponding (USFS 2006; Figure 2.23, Appendix A). The LWC would ideally be made of reinforced concrete, downstream sill, native cobble reinforcement, and possible excavation of approximately 3 feet down may be needed (approximate design, Figure 2.24, Appendix A). Downstream armoring with a downstream sill and riprap would reduce erosion and downcutting. The LWC should be designed for flooding between the 25- to 100-year events which, based on preliminary modeling, would require a LWC length of approximately 140 feet. The road approach to the LWC would be built low across the flood plain and dip down toward the drainage channel to minimize any impairment of the flood plain process (USFS 2006). The LWC width would be approximately 14 feet wide to match the proposed road. Ground disturbance for construction of the LWC would

consist of approximately 0.08 acre of temporary disturbance surrounding the site (disturbance during construction activities) and 0.05 acre of long-term disturbance.

2.2.2 Proposed Road Decommissioning

CBP and USFS propose to decommission 18 existing unimproved road segments within the Nogales Ranger District totaling 3.57 miles to offset the proposed approximately 3.75 miles of new road construction for access to the Holden Canyon area (Table 2.1, see Figures 2.15 through 2.20 and coordinates in Table A.1, Appendix A). The USFS requirement for the proposed road decommissioning would include barricading the roadway to prevent motorized vehicle travel onto the roadway. Barricades would include berms, boulders, slash, or logs across the roadway and several feet beyond the road edge to prevent access around the barrier.

Table 2.1. Proposed Roads for Decommissioning within the Nogales Ranger District

USFS Road Number/Name	Length (miles)
Road 509. Part of the road is the proposed Holden Connector Road. Overlap between 509 and Holden Connector is not calculated.	0.10
Road 253	0.17
Road 421	0.11
Road 467	0.19
Road 197	0.70
Cantina Connection	0.27
Road 364	0.20
Road 149	0.24
Road 440	0.31
Road 505	0.26
Road 438	0.05
Road 505	0.31
Road 564	0.21
Portion of Road 531	0.06
Road 602	0.21
Road 565	0.03
Road 412	0.06
Road 328	0.09
TOTAL	**3.57**

The roadway surface would be tilled and seeded with a USFS-approved native seed mix along areas visible from decommissioned road end points (e.g., up to a turn in the road or a hill) to eliminate the visibility of the road segment. Each road segment would be reviewed for road condition and applicability of tilling. Tilling the roadway involves breaking up and loosening compacted road surfaces to a depth of approximately 4 to 6 inches. This allows for infiltration of rainwater, improves natural runoff patterns, and helps reestablish natural vegetation. Native material such as rocks and woody debris remaining on the roadway would provide some camouflaging materials and help discourage motorized use (USFS 2018b). No tilling would occur within areas with resources sensitive to disturbance or non-wetland drainage features (avoidance areas, see Figures 2.13 through 2.20, Appendix A). Up to approximately 4.01 acres would potentially be temporarily disturbed for long-term closure of decommissioned road areas (calculations assumed a 14-foot-wide road and avoidance of all ephemeral drainages). Selected

methods for a given road segment would depend on site-specific needs, according to the judgments of the road engineer and other staff.

Within decommissioned road segments with resources sensitive to disturbance, including ephemeral drainages, no decommissioning activities would occur within sensitive areas to avoid potential impacts to these resources (avoidance areas, see Figures 2.13 through 2.20, Appendix A). Barricades would be installed across the road segment end points and several feet beyond the road edge to prevent motorized access around the barrier to further protect sensitive resources.

Decommissioning of these roads would contribute to the reduction of vehicle noise and increase the opportunities for quiet recreation, as emphasized in the Forest Plan. These road segments are duplicative of nearby roads that will continue to provide patrol and recreational access, no access would be lost.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

CBP and USFS evaluated other possible alternatives to the proposed Holden Canyon Connector Road. This section addresses options that were reviewed but not carried forward for further detailed analysis in the EA.

2.3.1 Alternative Alignment

CBP and USFS considered alternate routes for the Holden Canyon Connector Road. Alternate routes connecting the proposed new road to FR 4165 or FR 4170 were considered but eliminated due to deep canyons and ridges that would require extensive infrastructure, such as bridges, and would result in significant impacts to sensitive natural and cultural resources.

2.3.2 Decommission Roads and Revegetation Alternative

CBP and USFS considered an alternative of only decommissioning roads and revegetating decommissioned road disturbance areas. However, this alternative would not meet the purpose and need to improve mobility and accessibility for USBP agents responding to and seeking to prevent illegal cross-border traffic, address emergencies involving human health and safety, and prevent or minimize environmental damage arising from occurrence of and response to CBV illegal entry on public lands in the Holden Canyon and Warsaw Canyon areas. In addition, this alternative would not provide USFS with improved access and response times when called upon to respond to fire and rescue events in the rugged canyon terrain in the Holden Canyon area. Therefore, this alternative was eliminated from consideration.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 SCOPING TOPICS AND RESOURCE ANALYSIS

3.1.1 Scoping Topics

A list of scoping topics was developed by CBP and USFS project interdisciplinary team on the basis of their knowledge of Alternative B: Proposed Action and the area affected, and the public comments received during the 30-day scoping period. These scoping topics are reviewed to determine a) resources to be analyzed in depth, and b) topics which are not within scope, or which have been covered by prior environmental review and therefore are eliminated from detailed analysis. Primary resource topics were identified (see Section 3.1.2 below) and measures were developed to avoid, minimize, and mitigate potential impacts from proposed road improvement, repair, and construction, as well as decommissioning activities to address these topics. Refer to Appendix B for Avoidance, Minimization, and Mitigation (AMM) Measures.

3.1.2 Resource Topics

Resources identified for analysis in this EA include the following:

- Air Quality
- Climate Change
- Cultural Resources
- Fire and Fuels
- Range Resources
- Recreation
- Scenery/Visual Resources
- Soils
- Watershed/Surface Waters/Ephemeral Drainages
- Vegetation/Biotic Communities and Invasive Species
- Wildlife/Special Status Species

The resources that are not present or found to not be impacted by the Proposed Action because they would be completely mitigated with the implementation of standard best management practices or AMM measures will not be discussed further. Resource topics considered but eliminated from further analysis are shown in Table 3.1.

Table 3.1. Resource Topics Considered but Eliminated from Further Analysis

Resource	Present Yes/No	May Be Affected Yes/No	Rationale for Not Analyzing Resources in Detail within the Environmental Assessment
Environmental Justice	No	No	There are no environmental justice populations as described in Executive Order 12898 or Executive Order 13045 that would experience disproportionate adverse impacts resulting from the Proposed Action.
Geology and Minerals	Yes	No	The Proposed Action would not disturb the regional geologic resources of the area, since only near-surface modifications would be implemented, and the geotechnical setting would support the Proposed Action.
Hazardous Materials	Yes	No	Short-term negligible adverse impacts may occur from Proposed Action activities and the presence of construction equipment that may contain hazardous fluids. Proposed avoidance and minimization measures would be implemented to mitigate potential impacts.
Human Health and Safety	Yes	No	All safety procedures will be handled through Standard Operating Procedures including worker personal protective gear and public safety through Standard Operating Procedures such as sign deployment according to CBP and USFS guidelines.
Lands with Wilderness Characteristics	No	No	The Proposed Action is located within and near current USFS roads. The Pajarita Wilderness is located within 5 miles of the analysis area; however, this wilderness area would not be impacted by the Proposed Action.
Paleontological Resources	No	No	There are no known paleontological resources in the analysis area.
Prime and Unique Farmlands	No	No	No soils designated as prime or unique farmlands (7 United States Code [U.S.C.] § 4201 et seq.) occur within or near the analysis area.
Socioeconomics	No	No	The Proposed Action is not expected to substantially impact economic resources or demographics in southern Arizona.
Special Uses Management	No	No	The Proposed Action would not adversely impact any Special Use activities by the USFS.
Utilities and Infrastructure	No	No	No additional utilities or infrastructure would be required for the activities associated with the Proposed Action. No utility transmission lines, water lines, or fiber-optic cables are known to occur in the analysis area.
Wastes, Hazardous or Solid	No	No	There are no known hazardous waste sites present within the analysis area.
Wild and Scenic Rivers	No	No	The Proposed Action would not affect any reach of river designated as wild and scenic, as none are located in the vicinity of the analysis area.

3.1.3 Resource Impact Analysis

Impacts (consequence or effect) from the proposed alternatives may be direct, indirect, or cumulative, which may be either beneficial or adverse:

- **Direct:** An effect caused by an action and occurs in the same time and place (40 CFR § 1508.8).
- **Indirect:** An effect caused by an action but later in time or farther removed in distance, but still reasonably foreseeable (40 CFR § 1508.8).
- **Cumulative:** An effect caused by the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions (40 CFR § 1508.7).
- **Beneficial:** A positive change in resource condition or appearance or change that moves resource toward a desired condition.
- **Adverse:** A change that moves resource away from a desired condition or detracts from its appearance or condition.

Context describes the area or location where impacts would occur. Effects may be local, regional, or even broader and are defined for each resource/use within the analysis. Unless otherwise noted, local effects refer to those within and immediately adjacent to the project area. Regional effects refer to those within Pima and Santa Cruz counties.

Duration describes length of time an effect would occur, either short- or long-term. In general, for the purposes of this analysis, duration (temporal scale) of the direct or indirect effects analysis is defined as follows:

- Temporary: impacts lasting the duration of the project construction.
- Short-term: impacts up to three years in duration.
- Long-term: impacts from three to 10 years in duration following construction.

Severity describes impact degree, level, or strength. Severity has been categorized into negligible, minor, moderate, and major. The following generalized severity definitions apply:

- **Negligible:** changes would not be detectable and/or measurable. The resource/use would be essentially unchanged or unaltered.
- **Minor:** changes would be detectable and/or measurable and would have a slight change or alteration to the resource/use.
- **Moderate:** changes would be clearly detectable, measurable, and/or have an appreciable effect on the resource/use. The resource/use would be notably changed or altered, and the effect is apparent. Proposed activities could change the indicator over a small area or to a lesser degree.
- **Major:** changes would be readily detectable, and/or have a severe effect on the resource. The resource/use would be substantially changed or altered over a large area or to a large degree.

3.1.4 Cumulative Impact Analysis

Cumulative impacts are the incremental effects on the environment which result from the impact of actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes the action (40 CFR §1508.7).

The baseline used for cumulative impact analysis is Alternative A: No Action Alternative. The cumulative impacts analysis, while it includes some consideration of past human actions, does not fully quantify all effects of past human actions by adding up all prior actions on an action-by-action basis. By looking at current conditions, we capture residual effects of past human actions and natural events, regardless of which particular action or event contributed to those effects.

To result in cumulative impacts, the effects of an activity must overlap in space and time with the effects of the alternative analyzed. Though most of the Proposed Action impacts would be limited to within the project area, some effects may influence or be influenced by resources outside of the project area (for example, air quality, hydrology, scenery/visual, noise, or wildlife habitat). Therefore, the cumulative impacts analysis may consider activities occurring within adjacent areas, depending on the resource being analyzed. Cumulative impacts upon resources are discussed in each resource analysis in Sections 3.2 through 3.12 below. A summary of actions potentially contributing towards cumulative impacts and analyzed in the impacts section is located in Table 3.2 below. These actions may contribute effects to some, or all resources analyzed.

USBP has conducted law enforcement actions along the U.S./Mexico international border since its inception in 1924 and has continuously transformed its methods as new missions, modes of operations of CBVs, agent needs, and national enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, roads, and fences have impacted thousands of acres, with synergistic and cumulative impacts on soil, wildlife habitats, water quality, and noise. Beneficial effects have also resulted from the construction and use of these roads and fences, including, but not limited to: increased employment and income for border regions and its surrounding communities, protection and enhancement of sensitive resources north of the border, reduction in crime within urban areas near the border, increased land value in areas where border security has increased, and increased knowledge of the biological communities and prehistory of the region through numerous biological and cultural resources surveys and studies.

With continued funding and implementation of CBP's environmental conservation measures, including use of biological monitors, wildlife water systems, and restoration activities, adverse impacts due to future and ongoing projects would be avoided or minimized. Recent, ongoing, and reasonably foreseeable proposed actions would result in cumulative impacts; however, the cumulative impacts would not be significant.

Table 3.2. Past, Present, and Reasonably Foreseeable Future Projects in the Cumulative Impacts Analysis Area

Activity/Project	Agency/ Proponent	Summary	Status
Grazing Management	USFS/Nogales Ranger District and grazing lease holders	There are five grazing allotments within the project area and vicinity (see Section 3.6 Range Resources)	Ongoing
Recreational Use	USFS/Nogales Ranger District and adjacent lands	Dispersed camping, hunting, off-highway vehicle use, scenic drives, hiking, wildlife viewing (see Section 3.7 Recreation)	Ongoing
Forest Product Regulated Harvest	USFS/Nogales Ranger District	Public issued permits for fuelwood and forest products (e.g., mushrooms, berries).	Ongoing
Special Use Permits	USFS/Nogales Ranger District	Filming, guides, large gatherings, powerline maintenance and repair, and other activities that may require a special use permit.	Ongoing
Noxious Weed Treatments	USFS/Nogales Ranger District	Management activities related to the treatment to reduce noxious weeds.	Ongoing
Fire and Fuel Reduction	USFS/Nogales Ranger District	Fire and fuel reduction projects to minimize wildfire occurrence and spread (see Section 3.5 Fire and Fuels).	Ongoing
Watershed Protection	USFS/Nogales Ranger District	Instream flow sensor installation and monitoring of stream flows.	Ongoing
Road and Trail Maintenance	USFS/Nogales Ranger District	Maintenance and repair of existing USFS roads with heavy equipment. Maintenance of trails primarily with use of handheld equipment.	Ongoing
Road Construction	USFS/Nogales Ranger District and CBP	Construction of two new routes (approximately 1,000 feet) linking the international border road to National Forest System Roads west of the Pajarita Wilderness and south of Sentinel Peak. Includes decommissioning of road segments in the California Gulch area.	Pending
Border Barrier Projects	CBP	Construction of steel bollard fencing and surveillance towers and related infrastructure.	Past and Ongoing
Border Patrol Activities	USBP	Vehicle, foot, and horse patrol along USFS roads to minimize illegal border activities.	Ongoing
Illegal Border Activities	--	Illegal border crossings result in unauthorized roads and trails, trash and debris piles, and impacts to public safety.	Ongoing

3.2 AIR QUALITY

3.2.1 Affected Environment

Air Quality

The analysis area for air quality is considered the Tumacacori EMA that includes the proposed improvement, repair, construction, and decommissioning road segment project areas.

Local air quality standards fall under the jurisdiction of the U.S. Environmental Protection Agency (EPA) and are regulated by the National Ambient Air Quality Standards (NAAQS) as directed by the Clean Air Act (CAA) of 1970 and the Clean Air Act Amendments of 1990.

Criteria air pollutants are defined as those pollutants for which the Federal government has established air quality standards or criteria for outdoor concentrations in order to protect public health. NAAQS represent the maximum allowable concentrations and have been set for six criteria air pollutants: carbon monoxide (CO); ozone (O_3); particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}) or with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); and lead (Pb; EPA 2022a). The CAA also gives the authority to states to establish air quality rules and regulations.

The Arizona State Implementation Plan (SIP) includes a compilation of goals, strategies, schedules, standards, and enforcement actions that will lead to compliance with or maintenance of NAAQS. A designated geographic area in compliance with the NAAQS is considered in attainment, while an area that is non-compliant and exceeds NAAQS criteria pollutant levels is considered to be in nonattainment.

The State of Arizona has adopted both National Primary and Secondary Standards for criteria air pollutants, as shown in Table 3.3. National Primary Standards define the levels of air quality necessary to protect public health and welfare with an adequate margin of safety. The directly emitted criteria air pollutants include CO, nitrogen oxides (NO_X), SO_2, and PM_{10}. O_3 is a secondary air pollutant that results from photochemical reactions involving NO_X and volatile organic compounds.

Nonattainment areas are defined as those regions where the NAAQS are exceeded for at least one pollutant. The nearest nonattainment area is the Nogales PM_{10} nonattainment area, approximately 20 miles east of the analysis area (Figure 3.1, Appendix A). The area nonattainment classification level is moderate. The concentration of PM_{10} in the air in Nogales, Arizona is occasionally above Federal standards. The Arizona Department of Environmental Quality submitted a nonattainment SIP to the EPA in 2012. The EPA approved the plan in 2012 (77 FR 58962). The plan demonstrated that the Nogales area would attain the PM_{10} standards, if not for emissions from across the border. Such controls included in the plan are the following (Arizona Department of Environmental Quality 2023):

- Chemical or water suppressants on materials piles
- Pave public roads
- Pave commercial parking lots
- Curbing on paved roads

Sources of pollutants include the following:

- Unpaved roads
- Construction
- Emissions coming over the international border

No other nonattainment areas are located in the vicinity of the analysis area.

Class I areas are those areas that have been designated under the CAA as areas of special national or regional natural, scenic, recreational, or historic value and afforded special protection. The nearest Class I area is Saguaro National Park, approximately 60 miles northeast of the

analysis area. Actions that would affect air quality in Class I areas may be subject to additional scrutiny.

Table 3.3. National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Level	Averaging Time	Form
Carbon Monoxide (CO)	Primary	9 ppm	8-hour	Not to be exceeded more than once per year
		35 ppm	1-hour	
Lead (Pb)	Primary and Secondary	0.15 µg/m^3 (1)	Rolling 3-month Average	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	100 ppb	1-hour	98th percentile of 1-hour daily minimum concentrations, averaged over 3 years
	Primary and Secondary	53 ppb (2)	1 year	Annual Mean
Particulate Matter (PM_{10})	Primary and Secondary	150 µg/m^3	24-hour	Not to be exceeded more than once per year on average over 3 years
Particulate Matter ($PM_{2.5}$)	Primary	12.0 µg/m^3	1 year	Annual mean, averaged over 3 years
	Secondary	15.0 µg/m^3	1 year	Annual mean, averaged over 3 years
	Primary and Secondary	35.0 µg/m^3	24-hour	98th percentile, averaged over 3 years
Ozone (O_3)	Primary and Secondary	0.070 ppm (3)	8-hours	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Sulfur Dioxide (SO_2)	Primary	75 ppb (4)	1-hour	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	0.5 ppm	3-hour	Not to exceed more than once per year

Source: EPA 2022a
ppm = parts per million, ppb = parts per billion, µg/m^3 = micrograms per cubic meter of air
Notes:
(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.
(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR § 50.4[3]). A SIP call is an EPA action requiring a State to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.

Major sources of air pollutants in Pima and Santa Cruz counties include agriculture, mobile sources, electricity generation, and mining. Sources include the Valencia Power Plant in Nogales, approximately 25 miles east of the analysis area, and the Sierrita Mine, approximately 30 miles to the north. Natural processes, such as wildfires, also release significant amounts of some pollutants into the atmosphere.

Sensitive Receptors

Sensitive receptors for air quality are facilities that house or attract children, the elderly, and people with illnesses or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

The nearest sensitive receptors, which include residential areas and hospital, are approximately 4.5 miles east of the easternmost decommissioned roads area. The majority of the analysis area is located 20 miles or more west of the city of Nogales and sensitive receptor locations.

3.2.2 Environmental Consequences

General Conformity Rule

All actions taken by Federal agencies, including the Proposed Action, must comply with EPA's General Conformity Rule (40 CFR Part 93). This rule ensures that any action taken by a Federal agency does not interfere with a State's plans to attain and maintain national standards for air quality (EPA 2023a). Specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS, contribute to an increase in the frequency or severity of violations of NAAQS, or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones towards achieving compliance with the NAAQS.

Under the General Conformity Rule, Federal agencies must work with State, Tribal, and local governments in a nonattainment or maintenance area to ensure that Federal actions conform to the air quality plans established in the applicable State or Tribal implementation plan.

The General Conformity Rule also establishes a *de minimis* level for criteria pollutants. The *de minimis* level is the threshold for determining if a general conformity determination must be performed. Activities below this threshold level are assumed to have no significant impact on air quality. The *de minimis* levels for the Proposed Action (which are in attainment or unclassified for all criteria pollutants) are as follows:

- Volatile organic compounds, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$: 100 tons per year
- Pb: 25 tons per year

Activities above this threshold are required to make a formal general conformity determination.

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, the Nogales Ranger District would continue to manage the Holden Canyon area as directed under the Forest Plan (USFS 2018a) and no new access road through Holden Canyon would be constructed. In addition, proposed roads to be decommissioned would remain open, decommissioning would not occur. Travel on existing

roads would continue resulting in emissions from fossil fuel combustion and fugitive dust; however, existing vehicle travel within the analysis area and vicinity is light (20 vehicles or less per day) and emissions are minimal. Therefore, the No Action Alternative would have a negligible, long-term adverse impact on air quality from fossil fuel combustion and fugitive dust emissions. No new pollution sources would be introduced.

This alternative represents no change from current conditions and no measurable increase in travel (operation of vehicles) related emissions is expected. No impacts to sensitive receptors would occur under this alternative. Therefore, the general conformity rule does not apply.

Cumulative Impacts

Under the No Action Alternative, no new access road through Holden Canyon would be constructed and proposed roads to be decommissioned would remain open. Patrol and access roads would continue to be used at approximately current levels and no significant direct or indirect impacts to air quality would occur. There would not likely be a measurable long-term increase in vehicular traffic in the analysis area. Therefore, the No Action Alternative, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in adverse cumulative impacts.

Proposed Action Alternative

Direct and Indirect

Under the Proposed Action, emissions would include combustion of fossil fuels and fugitive dust associated with the improvement and repair of approximately 8.68 miles of existing road segments (approximately 14.58 acres of ground disturbance, predominantly within the existing road use and disturbed area). New construction of approximately 3.75 miles of a new segment for the Holden Canyon Connector Road would result in approximately 14.93 acres of ground disturbance (based on road engineering design). The Proposed Action also includes the decommissioning of approximately 3.57 miles of unimproved road segments that are no longer needed for patrol or access to offset the construction of approximately 3.75 miles of new road. Decommissioning of roads would include roadway surface tilling and seeding with a USFS approved native seed mix along areas visible from decommissioned road end points, road segments may also be barricaded with boulders, approximately 4.01 acres would potentially be temporarily disturbed. Ephemeral drainages within decommissioned road segments would be avoidance areas, no decommissioning activities would occur within these areas.

Once construction of the new road segment is completed, the effect on air quality would be similar to the No Action Alternative from the ongoing use (20 or less vehicles per day) of existing roads, fossil fuel combustion, and fugitive dust emissions; however, emissions may be less as the new Holden Canyon Connector Road would reduce the need to travel the longer route previously used for access, reducing vehicle miles traveled for patrol by use of the more direct route to the Holden Canyon area. In addition, the decommissioning of approximately 3.57 miles of unimproved road segments would reduce travel thereby further reducing emissions in these areas. Decommissioning of roads would result in long-term minor beneficial impacts due to reduced travel, reduced fossil fuel combustion, and reduced dust emissions, offsetting a portion of the impacts from the proposed new road segment emissions. There would not likely be a measurable long-term increase in vehicular traffic in the analysis area under the Proposed

Action; therefore, long-term, adverse impacts under the Proposed Action would be negligible, and similar to the No Action Alternative.

Short-term road construction emissions would consist of tailpipe emissions from construction equipment, and fugitive dust associated with earthmoving activities and disturbed surface areas. Construction equipment would include trackhoes, bulldozers, dump trucks, graders, compactors, loaders, similar heavy equipment, and water tender. Approximately three to five heavy equipment operators would be working at any given time. Improvement, repair, and construction, as well as road decommissioning, would take approximately six months over the winter season (October 1 through March 30). Construction emissions would be short-term (approximately six months), and geographically dispersed (in the area of the Holden Canyon Connector Road and decommissioned road segments). Therefore, direct impacts on ambient air quality due to improvement, repair, construction, and decommissioning activities would be short-term, minor, adverse, and dependent on weather conditions (e.g., high winds dispersing emissions). AMM measures would be implemented for the control of fugitive dust (see Appendix B).

This alternative represents a minor change from current conditions and only a negligible increase in travel (operation of vehicles) related emissions is expected. Therefore, the general conformity rule does not apply. No impacts to sensitive receptors would occur under this alternative.

Cumulative Impacts

Construction activities would result in emissions of criteria pollutants and would generate particulate matter as fugitive dust from ground-disturbing activities. The emissions generated during improvement, repair, construction, and decommissioning activities under the Proposed Action would be short-term adverse, localized, and minor. There would not likely be a measurable long-term increase in vehicular traffic in the analysis area as roads are primarily used for patrol and no long-term adverse air quality impacts are anticipated. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts to air quality.

3.3 CLIMATE CHANGE

3.3.1 Affected Environment

The Proposed Action climate change information is summarized from Climate Change Analysis for the Proposed Holden Canyon Connector Road Project on the Nogales Ranger District, Coronado National Forest (RECON Environmental, Inc. [RECON] 2024).

GHGs are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. GHGs are mainly produced by the burning of fossil fuels and through industrial and biological processes.

Federal Laws, Policies, and Regulations

U.S. Environmental Protection Agency

Endangerment Finding: In 2009, the EPA issued its science-based finding that the buildup of heat-trapping GHGs in the atmosphere endangers public health and welfare (EPA 2009). The "Endangerment Finding" reflects the overwhelming scientific evidence on the causes and impacts of climate change. It was made after a thorough rulemaking process considering

thousands of public comments and was upheld by the Federal courts. The EPA has many Federal-level programs and projects to reduce GHG emissions. The EPA provides technical expertise and encourages voluntary reductions from the private sector. The EPA also collaborates with the public sector, including states, Tribes, localities, and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy – Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership.

Greenhouse Gas Reporting Program: The GHG reporting program (40 CFR Part 98) requires large GHG emission sources, fuel and industrial gas suppliers, and CO_2 injection sites in the U.S., emitting GHGs over 25,000 metric tons of CO_2 equivalent (MT CO_2E) per year to report their emissions to the EPA (EPA 2022b). Carbon dioxide equivalent is a measure which takes into account the relative global warming potential of each GHG, as well as the mass of pollutant emitted.

For example, a source emitting 1 metric ton of CH_4 (global warming potential = 25), would be said to have emitted 25 MT CO_2E. This approach allows the impacts of all GHGs (CO_2, N_2O, CH_4, hydrofluorocarbons, perfluorocarbon, and sulfur hexafluoride) to be considered together.

Smaller sources and projects that emit less than 25,000 MT CO_2E are not required to report to the EPA. Based on the Climate Change Analysis report (RECON 2024), the Proposed Action is not required to report emissions due to the small size and scope of the project; however, for this analysis, actions below the 25,000 MT CO_2E threshold are assumed to have no significant impact.

U.S. Forest Service

In 2009, The USFS issued guidance for climate change considerations for NEPA analysis "Climate Change Consideration in Project Level NEPA Analysis" (USFS 2009). The basic concepts outlined in the guidance are:

1. Climate change effects include the effects of agency action on global climate change and the effects of climate change on a proposed project.

2. The Agency may propose projects to increase the adaptive capacity of ecosystems it manages, mitigate climate change effects on those ecosystems, or to sequester carbon.

3. It is not currently feasible to quantify the indirect effects of individual or multiple projects on global climate change and therefore determining significant effects of those projects or project alternatives on global climate change cannot be made at any scale.

4. Some project proposals may present choices based on quantifiable differences in carbon storage and GHG emissions between alternatives.

In 2023, the Deputy Chief of the National Forest System released updated guidance on how to consider GHG emissions and climate change in project-level NEPA analysis and documentation in response to the 2023 Council of Environmental Quality guidance (see Section 3.1.3 below).

The guidance was developed to ensure the USFS addresses climate change in NEPA analyses by considering the following (USFS 2023a):

1. A proposed project's effects on climate change through the estimation of GHG emissions.

2. Quantification of GHG emissions for a proposed action and all alternatives, including the no action alternative.

3. Contextualization of GHG emissions through social cost, equivalences, and climate action goals.

4. Climate change effects on a proposed project and how proposed actions, project objectives, project design, etc. can help ecosystems and human communities adapt to a changing climate.

Also in 2023, Region 3 (Arizona and New Mexico, Southwestern Region) released a Regional Climate Adaption Strategy. The adaptation strategy was developed to provide guidance and a workflow to help land managers incorporate climate adaptation and set priorities in planning, and to narrow adaptation options for the consideration of project-level tactics (USFS 2023b).

Council on Environmental Quality

In 2023, CEQ issued interim guidance to assist Federal agencies in their consideration of the effects of GHG emissions and climate change when evaluating proposed major Federal actions in accordance with NEPA and the CEQ Regulations Implementing the Procedural Provisions of NEPA (CEQ 2023). This guidance was developed to help facilitate compliance with existing NEPA requirements, improving the efficiency and consistency of reviews of proposed Federal actions for agencies, decision-makers, project proponents, and the public. The guidance provides Federal agencies with a common approach for assessing their proposed actions, while recognizing each agency's unique circumstances and authorities.

This guidance explains how agencies should apply NEPA principles and existing best practices to their climate change analyses by:

- Recommending that agencies leverage early planning processes to integrate GHG emissions and climate change considerations into the identification of proposed actions, reasonable alternatives (as well as the no-action alternative), and potential mitigation and resilience measures;

- Recommending that agencies quantify a proposed action's projected GHG emissions or reductions for the expected lifetime of the action, considering available data and GHG quantification tools that are suitable for the proposed action;

- Recommending that agencies use projected GHG emissions associated with proposed actions and their reasonable alternatives to help assess potential climate change effects;

- Recommending that agencies provide additional context for GHG emissions, including through the use of the best available social cost of GHG (SC-GHG) estimates, to translate climate impacts into the more accessible metric of dollars, allow decision-makers and the public to make comparisons, help evaluate the significance of an action's climate change effects, and better understand the tradeoffs associated with an action and its alternatives;
- Discussing methods to appropriately analyze reasonably foreseeable direct, indirect, and cumulative GHG emissions;
- Guiding agencies in considering reasonable alternatives and mitigation measures, as well as addressing short- and long-term climate change effects;
- Advising agencies to use the best available information and science when assessing the potential future state of the affected environment in NEPA analyses and providing up to date examples of existing sources of scientific information;
- Recommending agencies use the information developed during the NEPA review to consider reasonable alternatives that would make the actions and affected communities more resilient to the effects of a changing climate;
- Outlining unique considerations for agencies analyzing biogenic carbon dioxide sources and carbon stocks associated with land and resource management actions under NEPA;
- Advising agencies that the "rule of reason" and "concept of proportionality" inherent in NEPA and the CEQ Regulations should guide agencies in determining, based on their expertise and experience, how to consider an environmental effect and prepare an analysis based on the available information; and
- Reminding agencies to incorporate environmental justice considerations into their analyses of climate-related effects, consistent with Executive Orders 12898 and 14008.

State of Arizona

The State of Arizona has not adopted a statewide climate action plan, and no regulations aimed at identifying statewide and regional GHG emissions caps or GHG emissions reduction targets.

3.3.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the Nogales Ranger District would continue to manage the Holden Canyon area as directed under the Forest Plan (USFS 2018a) and no new access road through Holden Canyon would be constructed. In addition, proposed roads to be decommissioned would remain open, decommissioning would not occur. This alternative represents no change from current conditions, no road construction would occur, and no measurable increase in travel (operation of vehicles) related GHG emissions is expected. Therefore, the No Action Alternative would not result in a measurable increase in GHG emissions and no impact to climate change would occur.

Cumulative Impacts

Under the No Action Alternative, no new access road through Holden Canyon would be constructed and proposed roads to be decommissioned would remain open. Patrol and access roads would continue to be used at approximately current levels and no significant direct or indirect impacts to climate change would occur. There would not likely be a measurable long-term increase in vehicular traffic in the analysis area. Therefore, the No Action Alternative, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in adverse cumulative impacts related to climate change.

Proposed Action Alternative

The potential GHG emissions for the Proposed Action only address climate change impacts and non-biogenic carbon emissions from the proposed activities. Non-biogenic emissions include CO_2 emissions from the combustion of fossil fuels, CO_2 emissions from other non-combustion processes, and the portion of CO_2 from fuels with a fossil and biomass component that is considered fossil in origin.

A forest-unit (the entirety of the Coronado National Forest) level carbon white paper has been prepared by USFS staff that fulfills the biogenic carbon emission requirement (see Coronado Carbon Assessment in the Project Record). The unit-level carbon white paper covers baseline carbon stocks, pools, trends, and disturbance impacts. Biogenic emission sources are emissions that come from organic sources, such as wood, vegetation, and soil that were originally removed from the atmosphere by photosynthesis and, under natural conditions, eventually cycles through living organisms and the atmosphere.

Direct and Indirect

Potential Effects of the Proposed Action on Climate Change

The primary GHG emitted under the Proposed Action would be CO_2 in the form of combustion of diesel fuel and gasoline from construction equipment and patrol vehicles. The Proposed Action would result in short-term emissions associated with construction (approximately six months). Construction emissions associated with the Proposed Action were estimated using the USFS Greenhouse Gas Calculator for Mining, Construction, Hauling, and Commuting calculator (USFS 2023a). This calculator can be used to assist in developing GHG emission estimates for typical equipment and vehicles encountered in mining, construction, and other USFS projects.

Construction equipment needed to improve, repair, and construct the proposed road would include trackhoes, bulldozers, dump trucks, graders, compactors, loaders, and similar heavy equipment. A water tender would also be used for compaction of the road surface and dust abatement during construction (considered under dump/haul truck). Table 3.4 summarizes the modeled construction equipment for each phase. It should be noted that this equipment list is preliminary because road engineering is currently preliminary and not considered the final design; however, it is representative of what would be required.

Table 3.4. Modeled Construction Equipment For Each Phase

Phase	Phase Duration (Days/Miles)	Equipment
Road Improvement and Repair	40 Days	Excavator
	18 Days	Crawler Tractor/Dozer with Straight Blade
	18 Days	Crawler Tractor/Dozer with Six-way Blade
	8 Days	Grader
	20 Days	Dump/Haul Truck
	16,000 miles	4 Workers/Commuting Vehicles/Light Truck
Road Construction	12 Days	Dump/Haul Truck
	12 Days	Dump/Haul Truck
	24 Days	Crawler Tractor/Dozer
	24 Days	Crawler Tractor/Dozer
	12 Days	Grader
	12 Days	Soil Compactor
	12 Days	Excavator
	16,800 miles	7 Workers/Commuting Vehicles/Light Truck
Road Decommissioning	9 Days	Excavator
	9 Days	Crawler Tractor/Dozer
	9 Days	Crawler Tractor/Dozer
	4,800 miles	3 Workers/Commuting Vehicles/Light Truck
Source: USFS 2023a		

Total construction emissions were calculated using the USFS Region 8 Greenhouse Gas Calculator for Mining, Construction, Hauling, and Commuting calculator and are summarized in Table 3.5.

As indicated in Table 3.5, improvement, repair, construction, and decommissioning activities under the Proposed Action would generate 539.18 metric tons of GHG emissions (CO_2E). This is the equivalent of adding approximately 116 typical passenger cars (at 4.63 MT CO_2E per year per vehicle) to the road over a short period of time (approximately six months) (EPA 2020). The construction emissions would primarily be the result of diesel-powered construction equipment exhaust and would be temporary and cease when construction activities are completed.

Table 3.5. Proposed Action Construction-Related GHG Emissions (MT CO_2E per Year)

Phase	Source	Total CO_2 (pounds)	Total CO_2 (metric tons)	GHG Emissions (MT CO_2E)
Road Improvement and Repair	Large Equipment	474,574.30	215.32	215.32
	Hauling and Commuting	15,988.60	7.24	7.24
Road Construction	Large Equipment	485,497.76	220.28	220.28
	Hauling and Commuting	16,788.03	7.62	7.62
Road Decommissioning	Large Equipment	190,724.05	86.54	86.54
	Hauling and Commuting	4,796.58	2.18	2.18
	TOTAL	**1,188,369.32**	**539.18**	**539.18**
Calculation for CO_2E: Multiply GHG (CO_2) by Global Warming Potential (GWP) (CO_2 GWP = 1)				

While the Proposed Action would result in GHG emissions during construction, it is anticipated that the Proposed Action would not result in an increase in operational GHG emissions. The construction of a new road segment is proposed to reduce vehicle/patrol miles traveled in the Holden Canyon area. Currently, patrol vehicles must travel approximately 24 miles in order to access the eastern or western portions of the Holden Canyon area where there is currently no existing vehicle access. The proposed new road segment would reduce vehicle miles traveled by providing direct access to the Holden Canyon area. In addition, AMM measures would be implemented to reduce potential GHG emissions (see Appendix B). These strategies were not factored into the GHG emission calculations. Therefore, implementation of these measures would reduce GHG emissions beyond those summarized in Table 3.5. Furthermore, Proposed Action GHG emissions would be temporary (approximately six months) and would cease after construction activities are complete.

Patrol and access use of the existing road segments would likely stay at current levels, as there is no anticipated change in patrol frequency. Vehicle use of the proposed new road segment would be similar to existing use as the road segment connects existing road segments. Vehicle miles traveled would decrease due to the proposed new road segment and decreased use of the longer route currently used to reach the Holden Canyon area. Therefore, the Proposed Action is not anticipated to generate new vehicle trips and would not substantially increase operational emissions relative to existing conditions. Additionally, the Proposed Action does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Overall, the Proposed Action is not anticipated to result in an operational GHG emissions impact.

Total estimated GHG emissions under the Proposed Action, including road improvement, repair, construction, decommissioning, and road use, would not exceed the GHG 25,000 metric tons reporting threshold under the GHG Reporting Rule. Based on the number of heavy equipment vehicles planned per day (see Table 3.4), number of months of construction (up to six), and time of year (October through March), the GHG emissions would not exceed 550 metric tons (see Table 3.5). Based on the above analysis, the Proposed Action would result in negligible short-term adverse impacts related to GHG emissions, and long-term, adverse impacts on climate change would be negligible.

Potential Effects of Climate Change on the Proposed Action

The construction period (road segment improvement, repair, construction, and decommissioning) would occur over an approximately six-month period (October through March). Based on current trends, average air temperatures at the start and finish of construction should not be noticeably different. Rising temperatures in the region and further destabilization from extreme weather conditions in the Global South may impact CBP's operations and ability to operate in the future within the southwest region of the U.S., including the Tucson Sector. With the increase in extreme and unpredictable weather, CBP and USFS may need to extend construction activities to offset the impact of delayed work, resulting from intense rains, high winds, or other unsafe working conditions.

Many natural systems are expected to be affected by climate change; therefore, a proposed project should consider the likely impacts of climate change on the project's short- and long-term suitability and resilience. The frequency and severity of natural hazards may be affected by climate change, including:

- Flooding
- Extreme storms
- Drought
- Extreme heat
- Wildfires

Similarly, climate change may alter site suitability factors, such as:

- Air quality
- Soil stability
- Water resources, such as: excessive stormwater runoff and site flooding

It is USFS policy to incorporate climate considerations into decision-making and build resilience against the impacts of climate change. Climate change is creating warmer temperatures, deeper droughts, and drier vegetation. These conditions would likely persist in the coming decades and lead to an increase in the extent, intensity, and frequency of wildfires. The potential increase in wildfires within the Nogales Ranger District may result in road access limitations or road closures. Wildfires also lead to health and safety risks from fire and smoke exposure.

With average temperatures rising due to climate change, historically dry areas across the U.S., including southern Arizona, are likely to experience less precipitation and increased risk of longer, more intense droughts. Droughts cause dry forest conditions which lead to higher wildfire potential. Increased wildfires, as mentioned above, can lead to road closures.

Drought, extreme heat, and extreme weather that could lead to flooding all impact road soils. Within drought areas, the effects of runoff and wind exacerbate the rate of soil erosion. The drying of soils due to drought and extreme heat creates cracks which reduce the moisture and volume of soils. Heavy rain events can then result in higher erosion potential of dried, cracked soils, which in turn leave damaged roads that may require higher levels of maintenance and repair, and may require road closures or a pause in Proposed Action construction activities. Climate change impacts on the Proposed Action would likely be negligible to minor, short- and long-term, adverse due to potential impacts of drought, extreme heat, wildfire, and extreme weather on the proposed new and existing road segments.

Social Cost of Greenhouse Gases

SC-GHG values are calculated using models that translate changes in emissions into economic values, which allows decision-makers and the public to make comparisons, help evaluate the significance of an action's climate change effects, and better understand the tradeoffs associated with an action and its alternatives. The SC-GHG is the monetary value of the net harm to society associated with adding GHGs to the atmosphere in a given year. In principle, it includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters,

disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services (Interagency Working Group on Social Cost of Greenhouse Gases 2021).

The SC-GHG estimates are certainty-equivalent values that account for the uncertainty in future consumption per capita, and the certainty-equivalent discount factor incorporates this uncertainty. For most analyses, constant discount using the near-term target rate provides a close approximation of the present value from a policy action.

The metric of social cost is a range of estimates, in dollars, of the long-term damage done by one ton of GHG emissions. The model captures the pathway through which an extra ton of emissions leads to a change in atmospheric concentrations, which in turn leads to changes in average global surface temperature and precipitation. This then leads to biophysical impacts on changes in agricultural productivity, changes in health outcomes, sea level rise and coastal property damage, changes in energy consumption and declines in labor productivity.

Based on the Proposed Action's estimated GHG emissions (539.18 MT CO_2E; see Table 3.5), the net social costs using the estimates of social cost of CO_2 are shown in Table 3.6 below. Social costs are shown for the base year, which is the year construction activities may begin. There are no social costs beyond the base year as construction activities would last no more than six months (March through October) and occur only once (no construction activities beyond the base year).

Table 3.6. Proposed Action Construction-Related Social Costs of CO_2 (Base Year 2025)

Emission	Average 5%	Average 3%	Average 2.5%	95th Percentile 3%
CO_2	$9,000	$30,000	$44,000	$89,000
Source: USFS 2023b				

Cumulative

Based on the GHG analysis, construction activities would result in negligible adverse impacts from GHG emissions of pollutants. The GHG emissions generated during improvement, repair, construction, and decommissioning activities under the Proposed Action would be short- and long-term, negligible adverse. There would not likely be a measurable long-term increase in vehicular traffic in the analysis area. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts to climate change.

3.4 CULTURAL RESOURCES

Cultural resources include archaeological and historical sites, and properties important to maintaining the traditional beliefs and lifeways of local social groups ("traditional cultural properties"). Under Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations, 36 CFR Part 800, CBP and USFS have the responsibility, in consultation with the State Historic Preservation Officer, Tribes, and other interested parties, to identify historic properties within the Area of Potential Effect (APE) and to determine the effects that the Proposed Action could have on cultural resources.

3.4.1 Affected Environment

The analysis area for cultural resources is the APE within the southern portion of the Tumacacori EMA that includes the proposed Holden Canyon Connector Road and decommissioned road segments. The cultural resources affected environment for the Proposed Action is summarized from the Cultural Resources Assessment Report (Tierra Right of Way 2023a).

Area of Potential Effect

The APE consists of existing USFS road segments and the alignment of the proposed new road construction. The APE of the existing road segments includes approximately 8.68 miles and 50 feet off the road centerline of each side of the road (100 feet total). The APE for the proposed decommissioned road segments is approximately 49 acres. Within the approximate 3.75 miles of the undeveloped portion requiring new road construction, the APE consists of a minimum of 50 feet off the proposed road centerline of each side of the road. However, within areas of the new road construction that would require switchbacks and/or wider road and construction areas due to topography, the APE consists of 75 feet to 100 feet off the road centerline on each side of the proposed road. The APE for existing and undeveloped portions of the proposed Holden Canyon Connector Road is approximately 158 acres.

In consultation with the USFS, the proposed road was realigned to avoid cultural resource sites. The realignment area was surveyed by USFS archaeologist on January 5, 2024, using similar methodologies and the 100-foot survey width. No sites were found within the realignment survey area.

Cultural Resources Assessment Results

A pre-field records inventory was conducted with the USFS and Arizona State Museum to identify previously completed survey projects and known cultural resources. The records search was performed by a Secretary of the Interior qualified professional archaeologist on August 11, 2023. The Holden Canyon Connector Road APE and a 1-mile area surrounding the APE (study area) typified limited linear surveys, often old legacy projects. Over 50 sites are known in the study area. Prehistoric Ceramic period artifact scatters are common, and some could represent habitation sites. This region is a Historic period landscape for mining and ranching, and the study area includes mines, homesteads, water control features, and surveying monuments.

The records inventory showed 13 cultural resources within the study area that may intersect with APE, with four of these resources likely occurring within the APE. The four archaeological sites that were detected and reported include: AR-03-05-02-125, AR-03-05-02-431, AR-03-05-02497, and AR-03-05-02-822.

These four resource sites are three Historic period resources and one multicomponent site with prehistoric and Historic period occupations. The Historic period components and occupations are most consistent with the Arizona Territorial period or the very early Statehood interval. There are two mines, the Alamo (AR-03-05-02-125) and the Union (AR-03-05-02-431), and the Black Diamond mining camp (AR-03-05-02-822). Including the Black Diamond mining camp, there are four Historic period structures within the APE. These are typically single-room adobe or boulder masonry constructions. There are arrastras (primitive mill for grinding and pulverizing) at the California Gulch site (AR-03-05-02-497), indicating that the habitation is mining related, while a structure at the Union Mine might have origins in early ranching (homesteading) or

mining. These Historic period cultural resources are representative of sites in the Oro Blanco mining district and the borderlands region as a whole.

The single prehistoric Native American cultural resource is at the California Gulch site. This aceramic component is an expansive artifact scatter associated with a number of eroding thermal features. Diagnostic projectile points suggest occupations during the late middle and early late Holocene. The site probably functioned as a persistent basecamp that was occupied cyclically during the Archaic period. Food processing must be assumed based on the roasting features. Aceramic components are rare in this landscape, which probably reflects the lack of survey coverage in the area rather than the actual absence of Archaic sites.

Three of the sites are intersected by the APE, and one site, the Alamo Mine, lies immediately adjacent to the defined APE. As a group, these cultural resources meet eligibility requirements of the National Register of Historic Places (NRHP) or could potentially meet those significance criteria. Excluding the Alamo Mine, which remains Unevaluated, the remaining three sites are recommended or determined to be Eligible for the NRHP. Cultural resources in the APE inform under two broad historic contexts for the Arizona–Sonora borderlands—Archaic period Native American land use and Euromerican Arizona Territorial period mining.

3.4.2 Environmental Consequences

No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, existing road segments within the APE would continue to be used for USBP patrol and access. Water runoff and erosion would continue within road segments; however, no new ground disturbance from construction, maintenance, and repair activities would occur. Where existing USFS road segments cross or occur adjacent to known cultural resource sites, continued use of roads may result in minor to moderate adverse impacts to these sites.

Cumulative Impacts

Under the No Action Alternative, where existing USFS road segments cross or occur adjacent to known cultural resource sites, continued use of roads may result in minor to moderate adverse impacts to these sites; however, the No Action Alternative would not significantly contribute to cumulative impacts on cultural resources when combined with other past, present, or reasonably foreseeable future projects in the APE.

Proposed Action Alternative

Direct and Indirect Impacts

Under the Proposed Action, the improvement and repair of approximately 8.68 miles of existing USFS road segments, and construction of approximately 3.75 miles of a new road segment would result in disturbance to soils that could result in disturbance to cultural resources. The cultural resources survey of the APE identified four archaeological sites in or adjacent to the APE (Table 3.7). Three sites either meet eligibility requirements of the NRHP or are recommended as meeting those significance criteria. One site remains Unevaluated for NRHP listing and, because of this status, it is treated like a historic property.

Table 3.7. Summary of Historic Properties, Effect, and Mitigation Measures

Site Number	NRHP	Proposed Work	Effect	Mitigation Measure
AR-03-05-02-125	Unevaluated	Road Repair/ Improvement	No Effect	Maintain proposed APE for avoidance
AR-03-05-02-497	Determined Eligible (Criterion D)	Road Decommissioning	Potential Effect	Avoidance area, no decommissioning activities
AR-03-05-02-431	Recommended Eligible (Criteria C and D)	New Road Construction	Potential Effect	Proposed roadway realigned to avoid site
AR-03-05-02-822	Recommended Eligible (Criteria A, C, and D)	Road Repair/ Improvement	Potential Effect	Avoidance area, maintain existing road disturbance area and restrict excavation to avoid resources

As detailed in Table 3.7 above, cultural properties would be avoided, or activities would be modified or limited in scope under the Proposed Action to preserve their historic character and significance. Two sites lie along segments of existing roads. Avoidance and minimization measures for the five sites include the following:

- AR-03-05-02-125 lies immediately outside of but adjacent to the APE along FR 4168. The APE corridor would be strictly maintained at its currently planned location to avoid this site.
- AR-03-05-02-497 could be potentially affected by proposed road decommissioning activities of FR 505. Therefore, proposed decommissioning activities would be avoided (avoidance areas) at this site. This would involve moving potential road barricades outside of the boundaries and no tilling or reseeding would be allowed within the archaeological site.
- AR-03-05-02-431 is located adjacent to the proposed new road segment within the APE. The proposed road was realigned in the area of this site to avoid potential impacts. Additional cultural resources surveys were conducted within the realignment to ensure historic properties would not be affected (USFS communications).
- AR-03-05-02-822 is located within the existing road segment of the APE of FR 4167. The existing road corridor would be strictly maintained to avoid resources adjacent to the road and designated as an avoidance area, no improvement or repair activities would be conducted unless needed to ensure passage. Additional cultural resources surveys were conducted within the area to ensure historic properties would not be affected (USFS communications).

Avoidance of cultural sites as well as limiting and modifying activities at the four archaeological sites to preserve their historic character and significance has been incorporated into the Proposed Action Alternative. Based on these measures, as well as AMM measures outlined in Appendix B, the Proposed Action would not adversely affect formally determined or assumed historic properties as defined under Section 106 of the NHPA. There is a potential for long-term, minor to moderate, beneficial impacts to cultural resources because of the avoidance and added AMM measures.

Cumulative Impacts

Under the Proposed Action, there would be no adverse effects to historic properties. Provided that mitigation measures are implemented, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the APE, would not result in adverse cumulative impacts.

3.5 FIRE AND FUELS

3.5.1 Affected Environment

The analysis area for fire and fuels is the biological resources survey area and vicinity within the southern portion of the Tumacacori EMA.

The Nogales Ranger District experiences several fires each year, with the majority natural (primarily lightning) or human caused. Within the analysis area and vicinity, there have been 71 fires that were 5 acres or larger in the last 10 years (2014-2017; Figure 3.2, Appendix A). Based on the Arizona Wildfire Risk Assessment Portal (Arizona Department of Forestry and Fire Management 2023), the majority of the analysis area is classified from Very Low to Moderate wildfire threat (Figure 3.3, Appendix A).

Approximately 78 percent of the vegetation found in the biological resources survey area lies within the Semi-desert Grassland community, 20 percent within the Madrean Encinal community, and the remaining 2 percent within riparian communities. Invasive African grasses dominate the analysis area, with buffelgrass (*Pennisetum ciliare*), Lehmann lovegrass (*Eragrostis lehmanniana*), and natal grass (*Melinis repens*) common throughout the vegetative communities. These grasses are described below.

Buffelgrass: Buffelgrass is an invasive warm-season perennial bunchgrass from Africa that has become a serious ecological threat in southern and central Arizona. Buffelgrass was introduced into Arizona in the 1930s and 1940s to control erosion. It spread into native communities in Arizona from these introductions and from introductions in adjacent Sonora, where hundreds of thousands of hectares of native desert and thornscrub vegetation have been converted to buffelgrass pastures (Innes 2022). Buffelgrass is known to spread rapidly and forms dense stands that compete with native plants for soil moisture, nutrients, and seedling establishment sites. Buffelgrass also creates large, fine fuel loads that carry more frequent and intense fires than native vegetation, threatening non-fire adapted ecosystems.

Lehmann lovegrass: Lehmann lovegrass is a hardy, drought-tolerant bunchgrass that originally came from South Africa. Lehmann produces huge quantities of small-sized seed that accumulate in the soil seed bank. Seed is spread by wind, water, animals, and vehicles (USFS 2017).

Natal grass: In the book *Arizona Flora*, published in 1951, natal grass was only reported in Pima County in the Santa Catalina Mountains near Tucson. Since that time, it has spread into many areas in the Tucson area and appears to be expanding its range in the Arizona-Sonora borderlands. The introduction of natal grass results in changes in the composition and structure of desert grassland, but typically does not result in conversion to desert-scrub or some other type of vegetation (Arizona-Sonora Desert Museum 2023).

During moist years, non-native grasses can increase significantly. Non-native vegetation, particularly grasses, carry fire more rapidly, create larger fires, and allow fires to spread more widely than native species. The majority of native desert plants are not adapted to fire, plant seeds do not require fire to break dormancy, nor do many of these plants resprout after a fire. Non-native plants change the fire regime and threaten native plant communities.

3.5.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, existing road segments within the analysis area would continue to be used for patrol and access but no new road segments would be constructed, and roads proposed for decommissioning would remain open. Vegetation composition, distribution, and abundance would remain at the current condition and follow natural succession patterns. Natural and human-caused fire ignitions would continue to occur in the analysis area and vicinity in the future. The lack of motor vehicle access to the Holden Canyon area would continue to limit access for fire suppression activities if a wildland fire occurs in that area. Fire and fuels in the analysis area would not significantly change as compared to existing conditions. However, the No Action Alternative would not contribute to the desired conditions of the Forest Plan related to emergency access and resource protections to respond to fire and rescue events in the rugged canyon terrain in the Holden Canyon area or address the purpose and need of the Proposed Action.

Based on the above, the No Action Alternative would not likely result in short-term adverse or beneficial impacts related to fire and fuels; however, long-term minor to moderate adverse impacts may occur due to invasive species fuel load, wildfire susceptibility, and limited access for fire suppression activities in the Holden Canyon area.

Cumulative Impacts

The No Action Alternative may result in minor to moderate long-term adverse impacts related to invasive species fuel load, wildfire susceptibility, and fire suppression access. However, the No Action Alternative would not significantly contribute to cumulative impacts on fire and fuels when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Under the Proposed Action, the proposed project would result in soil and vegetation disturbance within the analysis area from road improvement, repair, construction, and decommissioning activities. Soil and vegetation disturbance are known to create favorable conditions for the establishment of invasive plant species. Invasive species could also spread from recreational and patrol use of the existing and new road segments. Buffelgrass is the dominant plant species throughout the majority of the analysis area and poses an increased threat of invasive species colonization. The potential spread of invasive species along disturbed areas in and adjacent to proposed road construction would be likely due to the existing presence of this and other invasives. However, the Proposed Action is not likely to result in a measurable increase in invasive species or other fuels or measurable change to fire frequency within the analysis area or

vicinity as compared to existing conditions due to the existing wide-spread presence of invasives, including buffelgrass. Therefore, long-term, adverse impacts from the spread of invasive species would be negligible. The implementation of AMM measures during construction would reduce potential direct and indirect impacts related to the spread of invasive plant species (see Appendix B).

The Proposed Action would contribute to the desired conditions outlined in the Forest Plan related to emergency access and resource protections to respond to fire and rescue events in the rugged canyon terrain in the Holden Canyon area as well as address the purpose and need of the Proposed Action. There is scientific literature that supports the benefits of forest roads and motorized access related to fire suppression and management. Forest roads work as fire breaks that limit the spread of fire as well as provide access for fire suppression (Price and Bradstock 2010, Narayanaraj and Wimberly 2012). Forest roads also support wildfire management activities, such as fire surveillance, prevention, access, and control operations (Thompson et al. 2021). Therefore, the Proposed Action would result in minor, long-term, localized, beneficial impacts related to fire suppression and fuels management in the analysis area due to the increased accessibility to emergency and management personnel.

Cumulative Impacts

Under the Proposed Action, there would be long-term negligible adverse impacts due to the potential spread of invasive species that may fuel wildfires; however, there would likely be minor, long-term, localized, beneficial impacts related to fire suppression and fuels management due to increased accessibility. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts related to fire and fuels.

3.6 RANGE RESOURCES

3.6.1 Affected Environment

The analysis area for range resources is the biological resources survey area and vicinity within the southern portion of the Tumacacori EMA.

There are five grazing allotments within the analysis area, shown in Figure 3.4 (see Appendix A) and Table 3.8 below. Livestock within these allotments consist primarily of cattle. Range improvements related to the grazing allotments within the analysis area consist primarily of fencing, gates, stock ponds/tanks, and cattle guards.

Table 3.8. Grazing Allotments within the Analysis Area

Allotment Name	Acres	Capable Acres	Permitted Use	Permitted Animal Unit Month	Current Management
Cross S	18,231	14,669	450 Cow/Calf	5,400	35% Growing Season 45% Dormant Season
Fresnal	12,961	11,583	280 Cow/Calf	3,360	35% Growing Season 45% Dormant Season
Mariposa	6,731	6,194	150 Cow/Calf	1,800	35% Growing Season 55% Dormant Season
Marstellar	10,553	8,126	247 Cow/Calf, 4 Horses	3,022	35% Growing Season 45% Dormant Season
Montana	20,964	15,132	400-500 Cow/Calf	4,800 – 6,000	35% Growing Season 45% Dormant Season
Source: USFS 2019					

3.6.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, existing road segments within the analysis area would continue to be used for patrol and access, no new road segment would be constructed, and existing road segments proposed for decommissioning would not be closed. Current range conditions and processes would continue and there would be little if any substantial change in forage conditions. Watershed and soil conditions would remain essentially the same. There would be no noticeable change in range conditions and the No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to range resources in the analysis area.

Cumulative Impacts

The No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to range resources. Therefore, the No Action Alternative would not significantly contribute to cumulative impacts on range resources when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Under the Proposed Action, proposed activities would result in soil and vegetation disturbance within the analysis area from road improvement, repair, construction, and decommissioning. Disturbance of soil and vegetation could lead to invasive species establishment and recreational and patrol use of the existing and new road segments could spread invasive species. However, invasive species are already present throughout the analysis area and activities under the Proposed Action would not likely result in a noticeable change in invasive species density or range conditions.

The Proposed Action would result in an increase of motorized use (patrol and recreational) within the portion of the Holden Canyon area that currently does not have motorized access. Patrol and recreational use within the analysis area may indirectly lead to changes in current livestock grazing patterns within two grazing allotments (Cross S and Montana allotments).

However, a relatively small portion of each allotment would be affected, and livestock displacement or disturbance would not likely be noticeable. In addition, the decommissioning of approximately 3.57 miles of unimproved road segments within all five allotments, including the Cross S and Montana allotments, would eliminate vehicle travel along closed road segments and over the long-term increase potential forage as vegetation re-establishment occurs within currently disturbed areas.

The potential increase in recreational use within the Holden Canyon area could result in vandalism or modification of range improvements such as fence damage or gates left open between pastures. However, there are minimal range improvements within the analysis area and the installation of a cattle guard would likely minimize issues related to gates (see Figure 2.9, Appendix A for approximate cattle guard location).

The Proposed Action, with implementation of AMM measures (see Appendix B) and inclusion of a cattle guard would not likely result in measurable short- or long-term direct or indirect adverse impacts to range resources as compared to existing conditions. The Proposed Action would result in minor, long-term, localized, beneficial impacts related to the decommissioning of 18 road segments (3.57 miles, approximately 4.01 acres) due to closure of existing roads to vehicle traffic and the potential increase of forage vegetation within currently disturbed areas.

Cumulative Impacts

Based on the above analysis, the Proposed Action would not likely result in measurable short- or long-term direct or indirect adverse impacts to range resources; however, minor, long-term, localized, beneficial impacts related to the decommissioning of 18 road segments would likely occur. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts on range resources.

3.7 RECREATION

3.7.1 Affected Environment

The analysis area for recreation resources is considered the southern portion of the Tumacacori EMA that includes the proposed improvement, repair, construction, and decommissioning road segment areas.

Recreational Opportunities

Recreational opportunities within the analysis area consist of water activities/fishing, scenic driving, picnicking, off-highway vehicles use, hiking, camping, wildlife viewing, and hunting. Peña Blanca Lake is located in the eastern portion of the Tumacacori EMA, and recreational opportunities include developed picnic areas, fishing, boating, swimming, hiking, photography, and wildlife viewing. There are established hiking trails in the Tumacacori Mountains, Atascosa Mountains, and in Sycamore Canyon within the Pajarita Wilderness, which is outside the proposed Holden Canyon Connector Road project area. Off-highway vehicles recreation occurs throughout the analysis area along USFS roads.

Hunting is a popular recreational activity within the analysis area. The Tumacacori EMA is located within Arizona Game and Fish Department (AGFD) Game Management Unit 36B.

Species hunted within this unit include javelina (*Tayassu tajacu*), mule deer *(Odocoileus hemionus)*, white-tailed deer (*Odocoileus virginianus*), mountain lion (*Felis concolor*), desert cottontail rabbit (*Sylvilagus audubonii*), white-winged dove (*Zenaida asiatica*), and Gambel's quail (*Callipepla gambelii*) (AGFD 2022a).

Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) is a system for classifying and managing recreation opportunities based on an inventory of three settings: physical, social, and managerial. Different attributes within these three settings help establish an area's attributes, allowing it to be categorized into one of six different ROS classes, ranging from the highly developed Urban classification to undeveloped Primitive areas. The ROS classes in the analysis area consist of Roaded Modified, Semi-Primitive Motorized, Semi-Primitive Non-motorized, and Primitive (Table 3.9; Figure 3.5, Appendix A). The Primitive classification is associated with the Pajarita Wilderness Area, which is outside the proposed Holden Canyon Connector Road and proposed decommissioned road segments activity areas (see Figure 3.5, Appendix A).

Table 3.9. ROS Classes by Road Type in the Analysis Area

ROS Class	Existing Road Segments (miles)	Proposed Road Segment (miles)	Decommissioned Road Segments (miles)
Roaded Natural	0.85	0	0.46
Semi-Primitive Motorized	6.72	1.76	2.23
Semi-Primitive Non-Motorized	1.11	1.99	0.88
TOTAL	**8.68**	**3.75**	**3.57**

ROS classes are referenced for recreation planning projects only, with the land use zone of Roaded Backcountry referenced for management and Forest Plan compliance. No effects analysis is required under the Forest Plan related to ROS classes.

Inventoried Roadless Areas

The majority of the analysis area is located within NFS lands outside of IRAs. Five of the proposed decommissioned roads are located within the Tumacacori IRA, as shown in Figure 3.6, Appendix A. IRAs refer to those areas identified and mapped in accordance with the Roadless Area Conservation Final Rule (2001 Roadless Rule, 36 CFR Part 294 and 66 Federal Register 3244-3272). The definitions of a roadless area for the 2001 Roadless Rule are undeveloped areas typically exceeding 5,000 acres that met the minimum criteria for wilderness consideration under the Wilderness Act and that were inventoried during the Forest Service's Roadless Area Review and Evaluation process, subsequent assessments, or forest planning.

The 2001 Roadless Rule prohibits new road construction and reconstruction in IRAs on NFS lands, except:

- To protect health and safety in cases of an imminent threat of flood, fire, or other catastrophic event that, without intervention, would cause the loss of life or property.
- To conduct environmental clean-up required by Federal law.
- To allow for reserved or outstanding rights provided for by statute or treaty.

- To prevent irreparable resource damage by an existing road.
- To rectify existing hazardous road conditions.
- Where a road is part of a Federal Aid Highway project.
- Where a road is needed in conjunction with the continuation, extension, or renewal of a mineral lease on lands that are under lease, or for new leases issued immediately upon expiration of an existing lease.

The Roadless Rule does not close or otherwise block access to existing roads. Classified roads within an inventoried roadless area may be maintained to the maintenance level for which they are designated (36 CFR § 294.12[c]).

3.7.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Recreational Opportunities: Under the No Action Alternative, there would be no change to existing road segments, no new road segment would be constructed, and roads would not be decommissioned. Visitor recreation experiences would not likely change within the analysis area. However, because the proposed Holden Canyon Connector Road would not be constructed under the No Action Alternative, there would be no new recreational opportunity within the analysis area.

Inventoried Roadless Areas: Under the No Action Alternative, decommissioning activities would not occur and the five road segments with the Tumacacori IRA would remain open.

Cumulative Impacts

The No Action Alternative would not likely result in adverse short- or long-term impacts to recreation. Therefore, the No Action Alternative would not significantly contribute to cumulative impacts on recreation when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Recreational Opportunities: Under the Proposed Action, the proposed project would result in the presence of construction vehicles and personnel within existing and undeveloped road segments. Proposed road improvement, repair, construction, and decommissioning activities would result in dust emissions and noise from the use of heavy equipment and vehicles, which may disrupt access to recreational opportunities. Construction activities would be limited to daylight hours and topography and/or vegetation may partially obstruct or diminish effects to any nearby recreationists. Any recreation access disruptions would likely only occur within short segments of existing roads during work activities and last short periods of time (likely between 2 to 7 days depending on location and work required). The Proposed Action would result in minor short-term, localized, direct and indirect adverse impacts to recreation opportunity in the analysis area during proposed road improvement, repair, construction, and decommissioning activities

due to the presence of construction equipment and activities that may disrupt recreational opportunities in the analysis area.

Proposed road improvement, repair, construction, and decommissioning activities, including hauling of equipment to work sites, may potentially result in safety issues where recreationists are using roads that are under construction or used for hauling. Potential safety issues between construction and recreational uses would be short-term (activity period would be from October through March) and limited to specific segments of roads being worked on or used for access. Speed limits would be maintained to minimize potential safety issues. The Proposed Action would result in minor short-term, localized, direct and indirect adverse impacts to recreation opportunity in the analysis area during proposed road improvement, repair, construction, and decommissioning activities due to potential safety issues.

The 18 existing USFS road segments proposed for decommissioning are located adjacent to the International Border Barrier Road and were primarily used for patrol and access. Many of these roads no longer serve to access the International Border Barrier Road because its engineering design resulted in cliffs or soil/rock build up areas that prevent access to the road. Access continues to be available in areas where decommissioned roads occur and, in many cases, occurs along improved road segments. Therefore, proposed decommissioning of 18 road segments would not result in direct or indirect adverse impacts to recreation opportunities in the analysis area.

Once proposed road improvement, repair, and construction activities are completed, the Proposed Action would result in access to previously inaccessible areas for recreational use and improve road conditions (Maintenance Level 2 roads for high clearance vehicles) within existing USFS road segments adjacent to Holden Canyon, potentially resulting in expanded recreational opportunities of the analysis area. Because of the remote, rugged nature of the area and ongoing law enforcement patrols, recreational opportunities are not likely to measurably increase. Therefore, the Proposed Action would result in minor long-term, localized beneficial impacts to recreation opportunity from expanded access and improved roads in the analysis area.

Inventoried Roadless Areas: Proposed decommissioning of five road segments located within the Tumacacori IRA would not result in adverse impacts to roadless area characteristics. The proposed decommissioning of these road segments is not prohibited under the 2001 Roadless Rule and anticipated effects to roadless characteristics would be beneficial from road segment closures/decommissioning. The Proposed Action would result in short-term negligible adverse impacts during barricade, tilling, and seeding (with a USFS-approved native seed mix) activities and long-term minor beneficial impacts from road segment closure/decommissioning within the Tumacacori IRA.

Cumulative Impacts

Based on the above analysis, the Proposed Action would result in minor short-term, localized, direct, and indirect adverse impacts to recreation opportunity due to road construction and safety concerns. However, the Proposed Action would also result in minor long-term, localized beneficial impacts to recreation opportunity from expanded access and improved roads. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts on recreation.

3.8 SCENERY/VISUAL RESOURCES

3.8.1 Affected Environment

The analysis area for scenery resources is the biological resources survey area and the southern portion of the Tumacacori EMA.

Scenic resources vary by location and by existing natural features including vegetation, water features, landform and geology, and human-made elements. All activities that forest visitors experience are performed in a scenic environment where scenery is defined by the arrangement of the natural elements of the landscape along with components of the built environment.

As outlined in the Coronado National Forest Scenery Management System Implementation Guide (USFS 2015), scenic integrity is the extent of deviation from landscape character. Scenic Integrity Objectives (SIOs) provide guidance to assess the deviation from existing landscape character. SIOs indicate the maximum acceptable degree of alteration to landscapes. In most areas, SIOs are established to protect existing scenery. In some areas, there are established and accepted uses that dominate and/or negatively affect scenery (such as communication sites, astrophysical facilities, and administrative areas), and in these areas, SIOs are lowered appropriately for the use. SIOs are established in the Forest Plan (USFS 2018a) and are used for forest plan monitoring and during project planning (USFS 2013). There are five SIOs ranging from "Very High" to "Very Low" as shown in Table 3.10 below.

Table 3.10. Scenic Integrity Objectives

Level	Objective	Description
Very High	The valued landscape character is intact, with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level. Ecological changes only.	Examples: Wilderness and recommended wilderness
High	The valued landscape character appears intact. Deviations may be present, but must repeat form, line, color, texture, and pattern common to the landscape.	Most of the forest, including roaded areas, scenic byways, and many areas without roads. May include range facilities and evident vegetation manipulation projects.
Moderate	The valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.	Examples: Most developed recreation sites, recreation residence areas, and organized organization camps.
Low	The valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape character being viewed, but they often borrow attributes from the surrounding landscape.	Examples: Major visitor centers and many administrative sites.
Very Low	The valued landscape character appears heavily altered. Deviations may strongly dominate the valued landscape character but should appear as natural occurrences when viewed at background distances.	Examples: Most communication sites, most astrophysical sites, large administrative sites, and the international border.
Source: USFS 2013		

The analysis area is located within Very High, High, Moderate, Low, and Very Low SIO areas (Figure 3.7, Appendix A). The area along the international border within the analysis area is classified as Low and Very Low SIO. The Pajarita Wilderness Area, consisting of approximately 7,420 acres, meets SIO Very High and is located outside of, but near, the analysis area (see Figure 3.7, Appendix A). The majority of the Tumacacori EMA within the analysis area meets SIO High, including roaded areas (see Figure 3.7, Appendix A). The southeast corner of the Tumacacori EMA within the analysis area has numerous border-related infrastructures, including roads, towers, and other features and the SIO is Moderate (USFS 2013; see Figure 3.7, Appendix A).

Throughout the entire Coronado National Forest, scenic quality is generally considered acceptable; however, landscapes throughout the forest, including the Tumacacori EMA and analysis area, have been impacted to varying degrees by management of multiple resources. Scenic resource issues and trends that have been identified within the forest that are relevant to the Tumacacori EMA and analysis area include the following (USFS 2018c):

- **International Border Activities:** Trends and issues to scenic quality include the creation of numerous unauthorized roads and trails by CBVs; extensive trash and debris piles left by CBVs; and development of border infrastructure such as roads, fences, and surveillance towers to improve border security.
- **Off-Highway Vehicle Use and Non-National Forest System Roads.** Off-highway vehicle use has become an increasingly popular recreational activity on public lands. Off-highway vehicle recreational use is allowed and an appropriate recreational activity within the Tumacacori EMA within roaded areas (outside of wilderness areas), some recreationists may drive off designated roads damaging vegetation, soils, and potentially causing contrasts in the landscape with these damages, which affects the scenic quality.
- **Declining Forest and Ecosystem Health.** An increase in wildfires, insect and disease outbreaks, and invasive plant species have been documented within the Coronado National Forest, including within the Tumacacori EMA. This trend has resulted in an adverse effect on the scenic quality of viewsheds.

3.8.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, existing road segments within the analysis area would continue to be used for patrol and recreational access, no new road segment would be constructed, and existing road segments proposed for decommissioning would not be closed. Existing scenic quality would remain relatively the same with minimal changes to scenery resources anticipated. Therefore, the No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to scenic or visual resources in the analysis area.

Cumulative Impacts

The No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to scenery resources. Therefore, the No Action Alternative would not significantly

contribute to cumulative impacts on scenery resources when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Under the Proposed Action, road improvement, repair, construction, and decommissioning would result in the presence of construction vehicles and personnel within existing and undeveloped road segments. The presence of construction equipment on the landscape would be temporary (approximately six months) resulting in minor short-term, localized adverse impacts to scenic quality and scenery resources.

The proposed road improvement, repair, construction, and decommissioning activities would also result in soil and vegetation disturbance within the analysis area. Proposed activities would occur within the SIO High designation, a management category requiring that any activities repeat attributes of form, line, color, and texture found in the existing landscape character. Disturbance of soil and vegetation would likely result in an alteration of the scenic quality and scenery resources by increasing linear contrast of form, line, and color in the existing landscape. Within the analysis area, there are a number of existing roads in the SIO High designation. The proposed improvement and repair of existing roads and the construction of a new road segment would not result in a major noticeable alteration of the existing landscape features and the existing landscape character would generally remain intact. The proposed new road segment would be constructed according to USFS standards using general guidelines for scenery management and measures to minimize adverse impacts to scenery resources have been included as part of the Proposed Action (see Appendix B). Additionally, 3.57 miles of road segments would be decommissioned, returning these road segments to a more natural state. Road decommissioning would offset the disturbance to soil and vegetations within the proposed 3.75 miles of new road construction.

Based on the above, the Proposed Action would result in minor localized adverse short- and long-term impacts to scenery resources in the SIO High designation within the new road segment with implementation of USFS standards and AMM measures (see Appendix B). Minor beneficial long-term impacts would occur to scenery resources in SIO High and Moderate designations within the decommissioned road segments due to the elimination of vehicle travel and revegetation of the areas.

Cumulative Impacts

Based on the above analysis, the Proposed Action would result in minor localized short- or long-term adverse impacts to scenery resources and SIO High designation areas; however, minor, long-term, localized, beneficial impacts related to the decommissioning of 18 roads would occur. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts to scenery resources and SIO High designation areas.

3.9 SOILS

3.9.1 Affected Environment

The analysis area for soils is the existing road, proposed new road, and proposed decommissioned road disturbance area, as shown in Figures 2.1 through 2.20 (see Appendix A) within the southern portion of the Tumacacori EMA.

Soils in the analysis area are shown below in Table 3.11. Soils maps are available for review upon request.

Table 3.11. Soils in the Analysis Area

Soil Map Unit Name	Acres	Soil Description
Caralampi	11.65	Gravelly sandy loam, 10 to 60 percent slopes (steep), well drained, high erosion
Chiricahua-Lampshire Association	29.03	Clayey-loamy aridisol mix that is well drained and has moderate runoff potential
Comoro	29.73	Floodplain, low runoff, well-drained coarse loams, 0 to 5 percent slopes
Graham	0.49	Shallow and very shallow, well drained, 20 to 50 percent slopes
Lampshire	6.39	Very gravelly sandy loam, 25 to 50 precent slopes
Lampshire-Chiricahua Association	68.07	Very cobbly loam, steep slopes
Pima	0.51	Floodplain, low runoff, well-drained fine silts
White House-Caralampi Complex	48.78	Gravelly loam, clay loan, clay, 10 to 35 percent slopes
White House-Hathaway Association	12.33	Steep slopes, well drained, high runoff, mixed and gravelly alluvium
Source: Natural Resources Conservation Service 2024		

Soils were analyzed for Estimated Erosion Hazard rating, from slight to severe, shown in Table 3.12 below. Soils rated as severe are considered highly erodible soils.

Table 3.12. Soils with Estimated Erosion Hazard Rating

Soil Description and Estimated Erosion Hazard Rating	Acres
Estimated Erosion Hazard: Slight Rating	
Cumulic Haplustolls, coarse-loamy, mixed, superactive, thermic	3.71
Estimated Erosion Hazard: Moderate Rating	
Aridic Lithic Argiustolls, clayey, mixed, superactive, thermic	9.22
Aridic Lithic Argiustolls, clayey-skeletal, mixed, superactive, thermic	5.22
Aridic Lithic Ustorthents, loamy-skeletal, mixed, superactive, nonacid, thermic	0.29
Fluventic Haplustolls, sandy-skeletal, mixed, thermic	0.08
Typic Argiustolls, loamy-skeletal, mixed, superactive, thermic	17.61
Source: Eric Robertson, Supervisory Soil Scientist, Arizona Zone Terrestrial Ecological Unit Inventory, pers. comm. March 2024 Note: Data were clipped to the road width, 14 feet, for existing and decommissioned roads and the new road disturbance area based on the preliminary road design.	

There are two soils classified as potential for prime farmland if irrigated within the analysis area; however, these areas are not irrigated and are not used for farming purposes. No prime or unique farmlands exist in the analysis area (U.S. Geological Survey 2023).

Topography in the analysis area varies with elevation ranging from approximately 3,480 feet to 5,280 feet above mean sea level. The analysis area consists of rolling hill ridges and canyon floors. Major geologic features within and surrounding the analysis area include (generally from east to west): Pajarito Mountains, Potrero Creek, California Gulch, Sentinel Peak, Bartlett Mountain, Holden Canyon, Cobre Ridge, Bonita Canyon, Sierra Canyon, Mojonera Canyon, Warsaw Canyon, Coches Canyon, Coches Ridge, and Cerro del Fresnal (Figure 3.8, Appendix A).

3.9.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, the Nogales Ranger District would continue to manage the Holden Canyon area as directed under the Forest Plan (USFS 2018a) and the new segment of road for Holden Canyon access would not be constructed and existing road segments may not be improved. In addition, proposed roads to be decommissioned would remain open, decommissioning would not occur. Under the No Action alternative, there is a potential for short- and long-term, minor, adverse impacts on soil resources due to continued use of required lengthy detours to access the Holden Canyon area and the use of the existing USFS road segments, which could continue to result in increased runoff and erosion potentials for these road segments.

Cumulative Impacts

The No Action Alternative would result adverse impacts on soil resources due to the continued use of lengthy detours to access the Holden Canyon area and the use of the existing USFS road segments resulting in short- and long-term, minor, adverse impacts on soil resources from ongoing erosion and compaction. The proposed new segment of road for Holden Canyon access would not be constructed under the No Action Alternative, and no new soil disturbance would occur. The ongoing use of existing roads would not result in major modification of soils in the analysis area; therefore, the No Action Alternative would not significantly contribute to cumulative impacts on soil resources when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Under the Proposed Action, approximately 14.93 acres of vegetation removal would occur due to new road construction and approximately 14.60 acres of soil disturbance due to road improvement and repair. These activities would potentially result in a short-term increase in soil erosion during construction activities that disturb and compact soils. Vegetation serves as a protective cover for the soil by dissipating the impact from rainfall and stormwater runoff energy. Erosion is a natural process, and a limited amount of soil erosion and sedimentation can benefit riparian ecosystems and enhance soil development in low areas (Baker et al. 2004). However, with the removal of vegetation and soil disturbance in the analysis area, a long-term increase in erosion potential would occur because less water would likely infiltrate into compacted soil during high-intensity rainfall events, causing an increase in surface runoff and sedimentation into drainages. Similarly, road crossings at drainages or through floodplains also

have the potential to result in a long-term increase in erosion and sedimentation during rain events.

A proposed LWC would be constructed where the proposed new road segment crosses the Holden Canyon drainage area (see Figure 2.12, Appendix A). The construction of the LWC would result in 0.05 acres of permanent impacts and 0.08 acres of temporary impacts (impacts to adjacent vegetation and soils during construction activities). The LWC would be constructed to reduce erosion from vehicle travel over the drainage. Impacts to soils would be minimized with the implementation of erosion-control measures, including the USFS National Core Best Management Practices (see Appendix B).

Approximately 3.57 miles of road segments would be decommissioned, returning approximately 4.01 acres of road segments to a more natural state. Soil disturbance would be avoided within areas with resources sensitive to disturbance and ephemeral drainages (see Figures 2.13 through 2.20, Appendix A). There are no soil types with an Estimated Erosion Hazard rating of severe (highly erodible soil) within existing, proposed, or decommissioned road segments.

Decommissioning of road segments would consist of tilling and seeding with a USFS-approved native seed mix along areas visible from decommissioned road end points. Tilling would consist of the use of hand tools or machines to physically break up shallow, compacted soils. Tilling of portions of the proposed decommissioned road segments would break up and loosen compacted road surfaces (up to six inches) and help reduce water velocity and disperse runoff and retain moisture to induce revegetation (USFS 2018b). Tilling typically results in decreased bulk density and increases saturated hydraulic conductivity in soils (USFS 2021). Barricades would also be used to prevent motorized travel onto the roadway to minimize soil disturbance. Road decommissioning would offset a portion of potential impacts to soil resources from road construction. Decommissioning of roads would result in reduced erosion and reduced sediment reaching drainages by decompacting soils within tilled areas, seeding with a USFS-approved native seed mix, and promoting plant growth on previously driven and disturbed road surfaces.

Based on the above, the Proposed Action would result in minor to moderate short- and long-term adverse direct and indirect impacts to soils within existing road segments due to improvement and repair activities that would disturb approximately 14.60 acres of soils, and construction activities that would remove approximately 14.92 acres of vegetation and cause soil disturbance. The decommissioning of 18 road segments (3.57 miles) would result in reduced water velocity, improved water retention, and reduced erosion and offset a portion of the 14.92 acres of new disturbance. In addition, AMM measures would be implemented to minimize erosion potential during project construction activities (see Appendix B). Based on the above, impacts to soils in the analysis area would be minor to moderate short-term adverse during construction (including improvement and repair) and decommissioning activities (tilling and seeding), long-term negligible to minor adverse from travel on roadway segments, and minor to moderate long-term beneficial within decommissioned and barricaded road segments.

Cumulative Impacts

The Proposed Action would result in short- or long-term direct and indirect minor to moderate adverse impacts to soil resources due to improvement, repair, and construction activities that would disturb soils and result in an increase in erosion potential; however, negligible to minor,

long-term, localized, beneficial impacts related to the decommissioning of 18 roads would also occur from the closure of road segments to motorized use, offsetting a portion of the proposed new road construction impacts. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts on soil resources.

3.10 WATERSHED, SURFACE WATERS, AND EPHEMERAL DRAINAGES

3.10.1 Affected Environment

Watershed and Surface Waters

The analysis area for watershed and surface waters is considered the southern portion of the Tumacacori EMA that includes the proposed improvement, repair, construction, and decommissioning road segment project areas.

The Clean Water Act §303[d][1][A] requires that each state monitor surface waters and compile a "303[d] List" of impaired streams and lakes. There are no impaired waters within the analysis area or downstream from the analysis area (EPA 2023b). The nearest impaired water body, Nogales Wash, is located approximately 4 miles east of the easternmost proposed decommissioned road, FR 328 within the analysis area (see Figure 1.3). This impaired water body is upstream from the analysis area. Impairment is primarily due to *Escherichia coli* (E. coli).

The project area is located within the Santa Cruz (Hydrologic Unit Code 15050301) and Rio de la Ascension/Concepcion (Hydrologic Unit Code 15080200) Watersheds, which combined encompass over 2,335 square miles in southern Arizona (EPA 2017; Uhlman et al. 2008; Figure 3.9, Appendix A).

The largest surface water contributor to the Santa Cruz and Rio de la Ascension/Concepcion Watersheds near the analysis area is the Santa Cruz River, with the Sycamore Canyon tributary the only major stream within the analysis area (Uhlman et al. 2008; Figure 3.10, Appendix A).

Ephemeral Drainages

The analysis area for drainages is the potential Waters of the U.S. survey area (described below) within the southern portion of the Tumacacori EMA that includes the proposed Holden Canyon Connector Road project area. The survey area and drainages found are summarized from the Preliminary Jurisdiction Delineation prepared by Tierra Right of Way (Tierra Right of Way 2023b). Ephemeral drainages were re-evaluated based on the most current definition of Waters of the United States (Revised Definition of “Waters of the United States”; Conforming [September 8, 2023, 88 Federal Register 61964]) in August 2024.

The proposed Holden Canyon Connector Road project ephemeral drainage resources survey area consisted of drainages adjacent to or within existing and proposed road segments. Within existing road segments, the survey area consisted of 50 feet off the centerline of each side of the road (100 feet wide total). This survey area width was chosen to provide sufficient information about the drainages that may be found within and adjacent to existing road segments. Within the undeveloped portion requiring new road construction, the survey area consisted of a minimum of 50 feet off the proposed centerline of each side of the road; however, within portions that would

require switchbacks and/or wider road and construction areas due to topography, the survey area consisted of 75 feet to 100 feet off the road centerline on each side of the proposed road. These survey area widths were chosen to capture the full road design potential impact area and provide sufficient information about drainages that may be found within or adjacent to the proposed road. Within proposed decommissioned road segments, the survey area consisted of 50 feet off the centerline of each side of the existing USFS numbered or named roads. This survey area width was chosen to provide sufficient information about the drainages that may be found within and adjacent to the existing and proposed road segments.

The drainages within the analysis area occur in various sizes and contain a wide range of characteristics. For each drainage, the active floodplain was delineated at the ordinary high-water mark, which was determined using ordinary high-water mark geomorphic indicators. The locations of these drainages are depicted in Figures 3.11 through 3.34, Appendix A.

Geomorphic indicators observed include bed and bank structures, mud cracks, drift deposits, sediment deposits, crested ripples, cobble bars, levees and narrow berms, knickpoints, benches, the lack of soil development, and the lack of vegetation. Fifty-six drainages were recorded within the analysis area. Based on the most up-to-date Army Corps of Engineers guidance, Revised Definition of "Waters of the United States"; Conforming (September 8, 2023, 88 Federal Register 61964), CBP and USFS determined that none of the drainages meet the criteria to be designated as Waters of the United States. The criteria are as follows: relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters which are: (i) currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) the territorial seas; or (iii) interstate waters, including interstate wetlands. Therefore, proposed road improvement, repair, construction, and decommissioning activities resulting in temporary disturbance of the ephemeral drainages do not require Clean Water Act Section 401 nor 404 permits.

3.10.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Watershed and Surface Waters: Under the No Action Alternative, there would be no change to existing road segments and no new road segment would be constructed. No changes to the existing watershed condition would occur under the No Action Alternative and no adverse impacts at the watershed scale would be expected.

Under the No Action Alternative, existing roads may not be improved and repaired, and no existing road segments would be decommissioned. Continued use of roads needing improvement and repair, as well as along proposed decommissioned road segments that would remain open to motorized use, may result in increased erosion and sediment transport into drainages of the analysis area from ongoing vehicle use and heavy precipitation events; therefore, negligible to minor direct and indirect impacts to surface waters would occur under the No Action Alternative.

Ephemeral Drainages: Under the No Action Alternative, existing road segments within the Holden Canyon analysis area would continue to be used for USBP patrol, recreation, and access.

In addition, proposed roads to be decommissioned would remain open, decommissioning would not occur. Vehicle travel would continue to occur through drainages within existing road segments; however, no new ground disturbance from improvement, repair, and construction activities would likely occur. Where existing road segments cross drainages, continued use of roads may result in short- and long-term minor adverse impacts to these drainages from erosion and degradation of roads from continued use and lack of improvement and repair.

Cumulative Impacts

The No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts at the watershed scale. Continued use of roads needing improvement and repair, including proposed decommissioned road segments, may result in increased erosion and sediment transport into drainages; therefore, the No Action Alternative would result in negligible to minor direct and indirect impacts to the watersheds due to ongoing vehicle use and heavy precipitation events. However, the No Action Alternative would not significantly contribute to cumulative impacts on these resources when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

The No Action Alternative would result in short- and long-term, minor, adverse impacts on ephemeral drainages due to the continued use of roads that cross drainages in the analysis area. However, the No Action Alternative would not significantly contribute to cumulative impacts on drainages when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Watershed and Surface Waters: Under the Proposed Action, the proposed project analysis area occurs within a small portion of the watersheds of the analysis area and no changes are anticipated. The Sycamore Canyon surface water area is located several miles outside of the disturbance areas for road improvement, repair, construction, and decommissioning activities and no patrol and access activities within the analysis area would impact this surface water, therefore, no impacts to the watershed are anticipated.

Ephemeral Drainages: Under the Proposed Action, road improvements and repairs would occur within the existing road segments that are currently used for patrol and access, including recreational access (approximately 8.68 miles). There are 14 ephemeral drainages within or immediately adjacent to existing road segments (see Figures 3.11 through 3.34, Appendix A). Based on the disturbed area of the existing road segments and proposed road improvement and repair activities, approximately 0.62 acres of these drainages would potentially be impacted during road improvement and repair activities under the Proposed Action (Table 3.13). One drainage within an existing road segment with resources sensitive to disturbance would be avoided and no improvement or repair activities would occur to minimize disturbance of the sensitive resources (see Figure 3.29, Appendix A).

Table 3.13. Summary of Ephemeral Drainages and Disturbance Area Acres

Drainage Number	Disturbance Area (acres)	Figure Number
Existing Road Segments – Improvement and Repair		
13	0.011	3.11
14	0.006	3.11
15	n/a	3.11
16	0.004	3.12
19	n/a	3.13/3.14
20	0.039	3.14
23	0.121	3.14/3.15/3.16
24	0.012	3.15/3.16
26	0.016	3.17
29	0.336	3.18/3.19/3.20/3.21
32	0.054	3.22
33	0.003	3.22
34	0.005	3.23
35	0.003	3.24
43	0.005	3.28
45	0.005	3.29
46	Avoidance Area	3.29
TOTAL	**0.621**	
New Road Segment - Construction		
36	0.006	3.25
41	0.042	3.26
42	0.014	3.26/3.27
TOTAL	**0.062**	
Proposed Decommissioned Road Segments		
2	Avoidance Area	3.31
3	Avoidance Area	3.30/3.31
4	Avoidance Area	3.30
42	Avoidance Area	3.27
48	Avoidance Area	3.32
49	Avoidance Area	3.32
50	Avoidance Area	3.32
52	Avoidance Area	3.32
53	Avoidance Area	3.33
55	Avoidance Area	3.34
56	Avoidance Area	3.34

Source: Tierra Right-of-Way 2023b
n/a = not applicable or no drainage within disturbance area

The disturbance area includes a LWC at the Holden Canyon drainage (see Figure 3.27, Appendix A). Based on analysis of the Holden Canyon drainage hydrology and LWC design considerations (USFS 2006), the structure would be an improved concrete vented ford (crossing) that would be built to avoid upstream ponding and allow stream flows through vents as well as over the crossing. The road approach to the LWC would be built low across the flood plain and dip down toward the drainage channel to minimize an impairment of the flood plain process (USFS 2006).

Vented LWCs generally obstruct flows less than most culverts and are less likely to cause flow diversions or accelerations, both of which can exacerbate a channel's inherent tendency toward instability. Because vented LWCs are shaped as dips in the road profile, water is likely to stay in the channel rather than diverting down the road or ditch (USFS 2006). Downstream armoring with a sill and riprap would reduce erosion and downcutting. In addition, LWC AMM measures would be implemented to reduce potential erosion and sedimentation potential (see Appendix B). Approximately 0.05 acres of long-term disturbance and 0.08 acres of temporary disturbance would occur for construction of the LWC (see Figure 3.27, Appendix A).

There are 11 ephemeral drainages within decommissioned road segments (approximately 3.57 miles; see Table 3.13). All of these drainages would be avoided, and no impacts would occur due to the presence of a resource sensitive to disturbance. The ends of the road would be barricaded to prevent motorized travel onto the road segments to minimize potential disturbance to these sensitive resources.

Proposed road improvement and repair activities could cause the deposition of fill materials or increased sedimentation into 17 ephemeral drainages. Construction equipment could further compact and disturb roadway soils which would result in an increase in erosion potential because less water would likely infiltrate into the soil during high-intensity rainfall events, causing an increase in surface runoff and sedimentation into ephemeral drainages. Improvement and repair activities on existing road segments within the approximately 0.62 acres of ephemeral drainages may result in a short-term potential increase of erosion and sedimentation if rain events occur during construction activities. Once improvement and repair activities are completed, erosion and sedimentation would decrease over the long-term. It is not anticipated that the affected drainage sections would be significantly altered or lost due to improvement and repair activities. Impacts during improvement and repair activities would be minimized with the use of erosion-control AMM measures (see Appendix B). These measures include preparation of a Stormwater Pollution Prevention Plan as well as compliance with any relevant permits required.

Road construction activities would result in the removal of vegetation and disturbance of soils within approximately 14.60 acres, including disturbance of 0.062 acres within three minor drainages. Vegetation removal and soil disturbance could result in increases in erosion and sedimentation into these drainages during the construction period. Impacts during construction activities would be minimized with the use of erosion control and revegetation of disturbed areas outside the roadway, as well as other erosion control AMM measures (see Appendix B).

Road decommissioning activities would not occur within ephemeral drainages, these areas have been designated as avoidance areas. Therefore, no adverse impacts to ephemeral drainages related to decommissioning activities would occur. Beneficial impacts may occur from the reduction of erosion and compaction from the closure of road segments to motorized vehicle activity.

Road improvement, repair, and construction activities may also result in the potential for contaminants to enter minor drainages due to potential leaks or spills from construction equipment. Site-specific storm water pollution prevention and spill protection plans would be required, as well as erosion control measures, and other soil and water resource protection measures would be implemented to avoid and minimize potential impacts (see Appendix B).

Based on the above, the Proposed Action would result in short-term localized and long-term minor, adverse impacts to ephemeral drainages from road improvement, repair, and construction activities. The decommissioning of 3.57 miles within 18 road segments, including 0.62 acres of minor drainages, would help offset new road construction within 0.062 acres of minor drainages and 0.05 acres of long-term disturbance for the construction of a LWC. Decommissioning of road segments would result in negligible to minor, long-term, localized beneficial impacts to ephemeral drainages. Measures would be implemented to avoid and minimize potential impacts (see Appendix B).

Cumulative Impacts

Based on the analysis above, the Proposed Action would result in short- and long-term minor adverse impacts to ephemeral drainages; however, negligible to minor, long-term, localized, beneficial impacts related to the decommissioning of 18 roads would likely occur. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts on the watershed, surface waters, and ephemeral drainages.

3.11 VEGETATION/BIOTIC COMMUNITIES AND INVASIVE SPECIES

3.11.1 Affected Environment

The analysis area for vegetation/biotic communities and invasive species is the biological resources survey area within the southern portion of the Tumacacori EMA that includes the proposed Holden Canyon Connector Road and decommissioned road segments. The Proposed Action vegetation/biotic communities and invasive species information is summarized from the Final Biological Resources Survey Report for the Holden Canyon Connector Road and Decommissioned Road Segments, Santa Cruz and Pima Counties, Arizona (RECON 2023).

The proposed Holden Canyon Connector Road biological resources survey area consisted of 50 feet off the centerline of each side of existing road segments (approximately 8.68 miles), 100 feet wide total. Within the undeveloped portion requiring new road construction (approximately 3.75 miles), the survey area consisted of a minimum of 50 feet off the proposed centerline of each side of the road; however, within portions that would require switchbacks and/or wider road and construction areas due to topography, the survey area consisted of 75 feet to 100 feet off the road centerline on each side of the proposed road. Within proposed decommissioned road segments, the survey area consisted of 50 feet off the centerline of each side of the existing USFS numbered or named roads.

Vegetation/Biotic Community Alliance Descriptions

Detailed descriptions of each biotic community are found in the Final Biological Resources Survey Report (RECON 2023). There are three vegetation (biotic) community types within the analysis area. Approximately 78 percent of the analysis area lies within the Semidesert Grassland community, 20 percent lies within the Madrean Encinal community, and the remaining two percent lies within riparian communities (Table 3.14). Biotic communities and plant alliances follow the Southwest Regional Gap Classifications (U.S. Geological Survey National Gap Analysis Program 2005).

Table 3.14. Vegetation/Biotic Communities within the Analysis Area

Vegetation Community	Alliance	Alliance Code	Decommissioned Road (Acres)	New/Improved Road (Acres)	Total Acres	Percent Survey Area
Semidesert Grassland	*Bouteloua curtipendula* Shrub Herbaceous	A.1552	30.21	61.37	91.58	44.88%
Semidesert Grassland	*Fouquieria splendens* Shrubland	A.863	--	56.05	56.05	27.47%
Madrean Encinal	*Quercus emoryi* Woodland	A.483	11.64	12.73	24.37	11.94%
Madrean Encinal	*Quercus oblongifolia* Shrubland	A.791	1.24	12.74	13.98	6.85%
Warm Desert Montane Riparian Woodland & Shrubland	*Populus fremontii* Seasonally Flooded Woodland	A.654	1.0	--	1.0	0.49%
Warm Desert Riparian Mesquite Bosque	*Prosopis velutina* Shrubland	A.1043	--	1.67	1.67	0.82%
Warm Desert Riparian Woodland & Shrubland	*Celtis reticulata* Shrubland	A.1033	0.67	--	0.67	0.33%
TOTAL			**44.761**	**159.30**	**204.06**	

Semidesert Grassland Biotic Community

This biotic community is a broadly defined desert grassland, mixed shrub-succulent or xeromorphic tree savanna that is typical of the borderlands of Arizona, New Mexico, and northern Mexico (Apacherian region), but extends west to the Sonoran Desert, north into the Mogollon Rim, and throughout much of the Chihuahuan Desert. It is found on gently sloping bajadas that supported frequent fire throughout the sky island mountain ranges and on mesas and steeper piedmont and foothill slopes in the Chihuahuan Desert. It is characterized by typically diverse perennial grasses. Common native grass species include *Bouteloua eriopoda, B. hirsuta, B. rothrockii, B. curtipendula, B. gracilis, Eragrostis intermedia, Muhlenbergia porteri, Muhlenbergia setifolia, Pleuraphis jamesii, Pleuraphis mutica*, and *Sporobolus airoides*, succulent species of *Agave, Dasylirion*, and *Yucca*, and tall shrub/short tree species of mesquite (*Prosopis* spp.) and various oaks (e.g., *Quercus grisea, Q. emoryi, Q. arizonica*). Many of the historical desert grassland and savanna areas have been converted, some to Chihuahuan Mesquite Upland Scrub (*Prosopis* spp.-dominated), through intensive grazing and other land uses.

Mapped vegetative alliances within the analysis area were the sideoats grama (*B. curtipendula*) and *Fouquieria splendens* (ocotillo) Shrubland Alliances. While the shrub and tree species within these alliances are appropriate, the dominant grass was buffelgrass, with some sideoats grama, Lehmann lovegrass, and natal grass within this biotic community in the analysis area.

Madrean Encinal Biotic Community

The Madrean Encinal biotic community occurs on foothills, canyons, bajadas, and plateaus in the Sierra Madre Occidentale and Sierra Madre Orientale in Mexico, extending north into Trans-Pecos Texas, southern New Mexico, and sub-Mogollon Arizona. These woodlands are

dominated by Madrean evergreen oaks along a low-slope transition below Madrean Pine-Oak Forest and Woodland and Madrean Pinyon-Juniper Woodland. Lower elevation stands are typically open woodlands or savannas where they transition into desert grasslands, chaparral or, in some cases, desertscrub. Common evergreen oak species include *Q. arizonica, Q. emoryi, Q. intricata, Q. grisea, Q. oblongifolia*, *Q. toumeyi* and in Mexico, *Q. chihuahuaensis* and *Q. albocincta*. Madrean pines (*Pinus arizonica, Pinus engelmannii, Pinus leiophylla*, or *Pinus strobiformis*), Arizona cypress (*Hesperocyparis arizonica*). Pinyon and juniper trees may be present, but do not dominate. Chaparral species such as *Arctostaphylos pungens, Cercocarpus montanus, Purshia* spp*. Garrya wrightii, Q. turbinella, Frangula betulifolia (=Syn Rhamnus betulifolia),* or *Rhus* spp*.* may be present, but do not dominate. The graminoid layer is usually prominent between trees as grassland or steppe and dominated by warm-season grasses such as *Aristida* spp., *B. gracilis, B. curtipendula, B. rothrockii, Digitaria californica, Eragrostis intermedia, Hilaria belangeri, Leptochloa dubia, Muhlenbergia* spp., *Pleuraphis jamesii*, or *Schizachyrium cirratum;* species typical of Chihuahuan Piedmont Semi-Desert Grassland. This system includes seral stands dominated by shrubby Madrean oaks typically with a strong graminoid layer. In transition areas with dryer chaparral systems, stands of chaparral are not dominated by Madrean oaks; however, Madrean Encinal may extend down along drainages.

Mapped vegetative alliances within the analysis area were the *Quercus emoryi* (Emory oak) Woodland Alliance and Mexican *Quercus oblongifolia* (blue oak) Shrubland Alliance.

Riparian Communities

North American Warm Desert Lower Montane Riparian Woodland and Shrubland

This biotic community occurs in mountain canyons and valleys of southern Arizona and New Mexico, and adjacent Mexico and consists of mid- to low-elevation (3,600 to 5,900 feet) riparian corridors along perennial and seasonally intermittent streams. The vegetation is a mix of riparian woodlands and shrublands. Dominant trees include *Populus angustifolia, P. deltoides* spp., *wislizeni, P. fremontii, Platanus wrightii, Juglans major, Fraxinus velutina*, and *Sapindus saponaria*. Dominants shrub layer species include *Salix exigua, Prunus* spp., *Alnus oblongifolia*, and *Baccharis salicifolia*. The vegetation is dependent upon annual or periodic flooding and associated sediment scour and/or annual rise in the water table for growth and reproduction.

The mapped vegetative alliance within the analysis area was the *Populus fremontii* Seasonally Flooded Woodland Alliance.

North American Warm Desert Riparian Mesquite Bosque

This biotic community consists of low-elevation (less than 3,600 feet) riparian corridors along intermittent streams in valleys of southern Arizona and New Mexico, and adjacent Mexico. Dominant trees include *Prosopis glandulosa* and *Prosopis velutina*. Shrub dominants include *Baccharis salicifolia, Pluchea sericea*, and *Salix exigua*. Vegetation, especially the mesquites, tap groundwater below the streambed when surface flows stop. The vegetation is dependent upon annual rise in the water table for growth and reproduction.

The mapped vegetative alliance within the analysis area was the *Prosopis velutina* Shrubland Alliance.

North American Warm Desert Riparian Woodland and Shrubland

This biotic community consists of low-elevation (less than 3,900 feet) riparian corridors along medium to large perennial streams throughout canyons and the desert valleys of the southwestern U.S. and adjacent Mexico. The vegetation is a mix of riparian woodlands and shrublands. Dominant trees include *Acer negundo, Fraxinus velutina, Populus fremontii, Salix gooddingii, Salix lasiolepis, Celtis laevigata var. reticulata*, and *Juglans major*. Shrub dominants include *Salix geyeriana, Shepherdia argentea*, and *Salix exigua*. The vegetation is dependent upon annual or periodic flooding and associated sediment scour and/or annual rise in the water table for growth and reproduction.

The mapped vegetative alliance within the analysis area was the *Celtis reticulata* Shrubland Alliance.

Invasive Plant Species

Invasive Plants Observed

Invasive African grasses dominate the analysis area. Buffelgrass, Lehmann lovegrass, and natal grass are common throughout the vegetative communities in the analysis area. See Section 3.6 of this EA for description of invasive species.

3.11.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, the Nogales Ranger District would continue to manage the Holden Canyon area as directed under the Forest Plan (USFS 2018a), no new road segment would be constructed, and existing road segments may not be improved. In addition, proposed roads to be decommissioned would remain open. Current vegetation/biotic community and invasive species conditions and processes would continue and there would be little if any substantial change. Therefore, the No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to vegetation/biotic community resources or noticeable increase in invasive species in the analysis area.

Cumulative Impacts

The No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to vegetation/biotic community resources. Therefore, the No Action Alternative would not significantly contribute to cumulative impacts on vegetation/biotic community resources when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect

Under the Proposed Action, most of the road improvement and repair activities would be conducted within previously disturbed areas of existing road segments (8.68 miles); however, some activities may need to be conducted in areas immediately adjacent to the existing road footprint to ensure passage. For example, equipment may need to be operated off existing roads to remove debris from drainage areas and fences, and to access and maintain roads. These activities could result in crushing or trampling of vegetation, resulting in temporary impacts on vegetation. These activities

would be minimized through appropriate heavy equipment operation techniques such as installation of temporary construction mats, reduced operating speeds, use of the initial ingress and egress points, and selection of appropriately sized equipment for the area and Proposed Action.

Ground disturbance for the proposed road improvement and repair within existing road segments (approximately 8.68 miles) would be approximately 14.60 acres (all within the existing road disturbed areas; Table 3.15). Potential indirect impacts may include habitat degradation associated with alterations in hydrology from stabilization of roads within existing road segments, which could change the flow of water along and adjacent to the roadways. Improvement and repair activities may also result in disturbance of road edges, which may increase potential for invasive species and potential increase in fire potential. However, potential impacts would occur within the existing road disturbed areas with minimal potential impacts to areas adjacent to the road. Disturbance to the existing road would be detectable during and shortly after improvement and repair activities (e.g., evident road repair areas, graded areas, improved drainage areas, vegetation removal with the existing road disturbed area), but over the long-term, disturbance would blend with the road and any vegetation disturbed along the edges of existing road segments during improvement and repair activities would return over time once activities are completed.

There is one avoidance area within an existing road segment with resources sensitive to disturbance (avoidance areas, see Figure 2.14, Appendix A). Within this avoidance area, the road would continue to be used for patrol and access; however, minimal road improvement or repair activity would occur to avoid potential impacts to the sensitive resource surrounding the existing road.

Table 3.15. Potential Impacts to Biotic Communities within Existing, Proposed New, and Proposed Decommissioned Road Segments

Biotic Community	Alliance	Impacts Decommissioned Road Segments (Acres)	Impacts New Road Segment (Acres)	Impacts Existing Road Segments (Acres)	Total Potential Impact (Acres)
Semidesert Grassland	*Bouteloua curtipendula* Shrub Herbaceous	0.00	2.08	0.00	2.08
Semidesert Grassland	*Fouquieria splendens* Shrubland	0.00	10.99	0.00	10.99
Madrean Encinal	*Quercus emoryi* Woodland	0.00	0.00	0.00	0.00
Madrean Encinal	*Quercus oblongifolia* Shrubland	0.00	1.81	0.00	1.81
Riparian	*Populus fremontii* Woodland	0.00	0.00	0.00	0.00
Riparian	*Prosopis velutina* Shrubland	0.00	0.04	0.00	0.04
Riparian	*Celtis reticulata* Shrubland	0.00	0.00	0.00	0.00
Disturbed	Existing Road Disturbed Area	4.01	0.01	14.54	18.55
TOTAL		**4.01**	**14.93**	**14.54**	**33.48**

Based on the above analysis, the proposed improvement and repair of approximately 8.68 miles (14.60 acres) of existing road segments would result in short-term negligible to minor adverse impacts to vegetation/biotic communities in the analysis area during improvement and repair activities. It is anticipated that vegetation/ biotic communities would recover in a relatively short period of time from any direct disturbance after activities are completed, and no long-term adverse significant impacts would occur from ongoing use of the existing road segments. The implementation of AMM measures during improvement and repair activities would reduce potential impacts to vegetation/biotic communities in the analysis area (see Appendix B).

The proposed construction of approximately 3.75 miles of a new unpaved Maintenance Level 2 road segment would result in impacts to biotic communities within the analysis area. The proposed new road segment would be approximately 10 to 12 feet wide in most areas. In areas requiring road switchbacks, a wider road area may be needed, and slopes may require reinforcement. Conservatively, a 14-foot-wide road width was assumed for potential impacts for most of the proposed road except in areas where slopes and switchbacks would be needed. Disturbance areas vary in width from 14 feet up to approximately 90 feet in an area requiring a switchback and downslope stabilization, based on the USFS road engineering design, as shown in Figures 2.9 through 2.13 (see Appendix A).

Vegetation along the proposed new road alignment would be removed by ground-based equipment during construction. Vegetation/ biotic community disturbance for the proposed new road segment would be approximately 14.93 acres (calculations included the need for slope and switchback reinforcement; see Table 3.15). Therefore, the proposed construction of approximately 3.75 miles (14.93 acres) of new road segment would result in short- and long-term minor to moderate adverse impacts to vegetation/biotic communities in the analysis area. The implementation of AMM measures during road construction would reduce potential impacts to vegetation/biotic communities in the analysis area (see Appendix B).

Under the Proposed Action, 18 existing road segments would be decommissioned totaling approximately 3.57 miles to offset the proposed approximately 3.75 miles of new road construction. Assuming a 14-foot-wide road, decommissioning of 3.57 miles would result in the closure of approximately 4.01 acres, all within the existing road disturbed areas (see Table 3.15). The USFS requirement for the proposed road decommissioning would include barricading the roadway to prevent motorized vehicle travel onto the roadway. Barricades would include either boulders, berms, slash, or logs across the roadway and several feet beyond the road edge to prevent access around the barrier. Portions of road segments would be tilled and seeded with USFS approved native seed mixes along areas visible from decommissioned road end points. Tilling would allow infiltration of rainwater, improve natural runoff patterns, and would help reestablish natural vegetation along with seeding within these areas. Within decommissioned road segments with resources sensitive to disturbance and ephemeral drainages, no decommissioning activities would occur to avoid potential impacts to these resources (avoidance areas, see Figures 3.29 through 3.34, Appendix A). Minimal disturbance to native vegetation is anticipated within decommissioned road segments as these are existing disturbed roads with minimal native vegetation present. Based on the above, decommissioning of these roads would result in short-term negligible adverse impacts to soils during tilling and seeding activities; however, decommissioning would result in long-term negligible to minor beneficial impacts

from improved water infiltration and the re-establishment of native vegetation within segments that are tilled and seeded, and elimination of motorized vehicle travel on all decommissioned road segments.

Potential Impacts from Invasive Plants

The implementation of the Proposed Action would result in soil and vegetation disturbance within the analysis area from road improvement, repair, construction, and decommissioning activities. Soil and vegetation disturbance are known to create favorable conditions for the establishment of invasive plant species. Invasive species could also spread from recreational and patrol use of the existing and new road segments. Buffelgrass is the dominant plant species throughout the majority of the analysis, including the proposed new road segment area, and an increased threat of invasive species colonization and spread in the disturbed areas in and adjacent to the road construction would be likely due to the existing presence of this and other invasives. Invasive species are abundant and widespread throughout the analysis area and vicinity. The implementation of AMM measures during construction would reduce potential impacts related to the spread of invasive plant species (see Appendix B). Impacts related to the spread of invasive species would be short and long-term, minor, adverse.

Cumulative Impacts

Based on the above analysis, the Proposed Action would result in short- and long-term minor to moderate adverse impacts to vegetation/biotic communities in the analysis area; however, minor, long-term beneficial impacts related to the decommissioning of 18 road segments would also occur. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts to vegetation/biotic community resources in the analysis area.

3.12 WILDLIFE/SPECIAL STATUS SPECIES

3.12.1 Affected Environment

The analysis area for wildlife/special status species is the biological resources survey area within the southern portion of the Tumacacori EMA that includes the proposed Holden Canyon Connector Road and decommissioned road segments. The analysis area also includes a larger surrounding area (0.25-mile buffer) that may be affected by noise, dust, and road improvement, repair, construction, and decommissioning activities. USFWS guidance is to limit potentially disturbing activities to areas ≥0.25 mile from Mexican spotted owl nest sites, and although the Proposed Action would be constructed outside the breeding bird season, this is the best available science and is thus the basis for determining the expanse of the analysis area, unless stated otherwise. The wildlife/special status species affected environment for the Proposed Action is summarized from the Final Biological Resources Survey Report (RECON 2023).

Endangered Species Act Listed Species

CBP prepared a Biological Assessment (BA) in coordination with the Nogales Ranger District that evaluates potential impacts to federally listed species. The USFWS listed species affected environment for the Proposed Action is summarized from the Draft BA.

A list of species that have the potential to occur within the Proposed Action analysis area and vicinity was obtained from the USFWS Information for Planning and Consultation System for the proposed Holden Canyon Access Road and proposed decommission road segments (Appendix C) and AGFD Online Review Tool (Appendix D).

Based on these sources, federally listed species were identified that have the potential to occur within the Proposed Action analysis area are shown in Table 3.16. Table 3.16 also provides a summary of potential to occur or reason to be excluded from further analysis.

Migratory Birds

The USFWS IPaC database (see Appendix C) listed 11 migratory bird species that may occur in the analysis area and vicinity: Arizona woodpecker (*Picoides arizonae*), black-chinned sparrow (*Spizella atrogularis*), black-throated gray warbler (*Dendroica nigrescens*), elegant trogon (*Trogon elegans*), gilded flicker (*Colaptes* chrysoides), golden eagle (*Aquila chrysaetos*), Lewis's woodpecker (*Melanerpes lewis*), olive-sided flycatcher (*Contopus cooperi*), rufus-winged sparrow (*Aimophila carpalis*), varied bunting (*Passerina versicolor*), and Virginia's warbler (*Verivora virginiae*). These bird species were not observed during biological resources surveys. Based on habitat features within the analysis area and vicinity, these migratory birds have the potential to occur.

Based on surveys and data obtained through the Arizona Important Bird Area (IBA) Program, migratory birds found within the Atascosa Mountains IBA, which covers all of the analysis area and vicinity, include the following: rufus hummingbird (*Selasphorus rufus*), olive-sided flycatcher, greater pewee (*Contopus pertinax*), willow flycatcher (*Empidonax traillii*), Hammond's flycatcher (*Empidonax hammondii*), gray vireo (*Vireo vicinior*), tree swallow (*Tachycineta bicolor*), hermit thrush (*Catharus guttatus*), Swainson's thrush (*Catharus ustulatus*), eastern bluebird (*Sialia sialis*), MacGillivray's warbler (*Geothlypis tolmiei*), Virginia's warbler, black-throated gray warbler, Townsend's warbler (*Setophaga townsendi*), Wilson's warbler (*Cardellina pusilla*), yellow-breasted chat (*Icteria virens*), summer tanager (*Piranga rubra*), and blue grosbeak (*Passerina caerulea*; Arizona Important Bird Areas Program 2023).

U.S. Forest Service Species

A list of USFS sensitive species with the potential to occur in the analysis area was obtained from the USFS Nogales Ranger District. Sensitive species are listed as such by the Regional Forester because of concern about their status and the potential for populations to decline to the point of becoming listed under the Endangered Species Act. Sensitive species are analyzed in accordance with USFS Manual 2670. USFS sensitive species, habitat descriptions, and the potential to occur within the survey area and vicinity are described in Table 3.17.

Table 3.16. Federally Listed Species That May Occur Within the Analysis Area

Common Name	Scientific Name	Status	Habitat/Distribution	Reason for Analysis or Exclusion
Mammals				
Jaguar	*Panthera onca*	Endangered	Found near water in the warm tropical climate of savannah and forest. Rarely found in extensive arid areas. Individuals in Arizona have been found in Sonoran Desert scrub up through subalpine conifer forest.	Potential to occur. Potential foraging habitat and travel corridor within analysis area. Final Critical habitat designated and overlaps with the Action Area (Figure 3.35, Appendix A). Not observed during biological resources surveys.
Ocelot	*Leopardus (Felis) pardalis*	Endangered	Seem to prefer dense cover. Use a variety of habitats, hunting in brushy forests and semi-arid deserts in the northern part of its range.	Potential to occur. Potential foraging habitat and travel corridor within analysis area. Not observed during biological resources surveys.
Sonoran pronghorn	*Antilocarpa americana sonoriensis*	Experimental Population, Non-essential	Found exclusively in the Lower Colorado River Valley and the Arizona Upland subdivisions of the Sonoran Desert scrub biome. Prefer sparsely-vegetated, flat, open spaces that are ideal for swift running and visual detection of predators.	Not likely to occur. Analysis area and vicinity consists of rolling hills with deep canyons with minimal flat open spaces. No habitat features preferred by this species are found in the analysis area. No critical habitat has been designated. Not observed during biological resources surveys.
Birds				
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	Threatened	Commonly nest along heavily wooded xeroriparian drainages with large saguaro cacti (*Carnegiea* gigantea) or trees with suitable nesting cavities within Sonoran Desert scrub and semi-desert grassland communities.	Potential to occur. Potential nesting and foraging habitat within analysis area. No critical habitat designated within analysis area. Not observed during biological resources surveys.
California least tern	*Sterna antillarum browni*	Endangered	Prefer beachfront habitat with sparse or low-lying vegetation and low disturbance from humans and mammalian predators. Forage habitat includes nearshore waters, estuarine channels, narrow bays, and other shallow marine habitat.	Not likely to occur. Analysis area and vicinity consists of rolling hills with deep canyons with no beachfront or low-lying vegetation. No habitat features preferred by this species are found in the analysis area. No critical habitat has been designated. Not observed during biological resources surveys.

Common Name	Scientific Name	Status	Habitat/Distribution	Reason for Analysis or Exclusion
Masked bobwhite quail	*Colinus virginianus ridgwayi*	Endangered	Prefer grass plains, river valleys, and foothills in the lower Sonoran zone between 780- and 2,500 feet elevation.	Not likely to occur. Analysis area and vicinity consists of rolling hills with deep canyons with no grass plains. No habitat features preferred by this species are found in the analysis area. No critical habitat has been designated. Not observed during biological resources surveys.
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	Primarily breed in dense old-growth mixed-conifer forests with complex structure. Typically, within uneven-aged and multistoried forests. Forage in managed and unmanaged forests, pinyon-juniper woodlands, mixed-conifer and ponderosa pine forests, cliff faces and terraces between cliffs, and riparian zones.	Potential to Occur. Potential foraging habitat within the analysis area. Final critical habitat designated and overlaps with the analysis area (see Figure 3.35, Appendix A). Not observed during biological resources surveys.
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Riparian obligate species, breeds in vegetation along rivers, streams, and other wetlands. Nesting and foraging occur in areas of relatively dense and expansive growths of trees and shrubs, near surface water or saturated soils.	Not likely to occur. Minimal suitable habitat is present within the analysis area. Riparian areas within the analysis area do not have the dense vegetation required for this species; however, there are no known occurrences in the analysis area. Not observed during biological resources surveys.
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Riparian obligate species found in large blocks of riparian woodlands consisting of cottonwood (*Populus fremontii*), willow (*Salix arizonica*), or tamarisk (*Tamarix* species) galleries.	Known to occur. This species has been documented in riparian areas adjacent to the analysis area. Final critical habitat designated and overlaps with the analysis area (see Figure 3.35, Appendix A). Not observed during biological resources surveys.
Reptiles				
Sonoyta mud turtle	*Kinosternon sonoriense logifemorales*	Endangered	Found in springs, creeks, ponds, and waterholes of intermittent streams. This species is limited in its distribution to the Rio Sonoyta basin in Arizona and Sonora, Mexico. In Arizona, only found in the Quitobaquito Springs.	Not likely to occur. Analysis area is located more than 25 miles from the Quitobaquito Springs area. There is final critical habitat designated for this species, but it does not overlap with the analysis area. Not observed during biological resources surveys.

Common Name	Scientific Name	Status	Habitat/Distribution	Reason for Analysis or Exclusion
Amphibians				
Chiricahua leopard frog	*Rana chiricahuensis*	Threatened	Permanent waters in ponds, tanks, cienegas (wet meadows), and small streams.	Potential to occur. Potential habitat within stock ponds, tanks, and small streams within or adjacent to the analysis area. Final critical habitat designated and overlaps with the analysis area (see Figure 3.35, Appendix A). Not observed during biological resources surveys.
Fish				
Gila topminnow	*Poeciliopsis occidentalis*	Endangered	Prefer shallow, warm, fairly quiet waters in ponds, cienegas, tanks, pools, springs, small streams, and the margins of larger streams. Dense mats of algae and debris along the margins of the habitats are an important component for cover and foraging.	Not likely to occur. This species has point observations from 1992, element occurrences, and predicted range, primarily in the California gulch stream area north of the Action Area (AGFD 2019b). However, there is minimal suitable habitat, and this species is not known to occur in the analysis area. Not observed during biological resources surveys.
Sonora chub	*Gila ditaenia*	Threatened	Able to persist in small, marginal habitats and persist in intermittent desert streams. Adults utilize riverine habitats when available, and have been found in runs, riffles, and pools. In dry periods, chub persist in pools of clear water created by cliffs, boulders, and cover that remain wet year-round in intermittent streams.	Known to occur. This species has been documented in riparian areas adjacent to the analysis area. Final critical habitat designated but does not overlap with the analysis area (Figure 3.35, Appendix A). Not observed during biological resources surveys.
Insects				
Monarch butterfly	*Danaus plexippus*	Candidate	Milkweed and flowering plants are required habitat features. Feed on the nectar of many flowers during breeding and migration, but they can only lay eggs on milkweed plants.	Potential to occur. Potential migration habitat (flowering plants). Not likely to breed in analysis area. No critical habitat designated. Not observed during biological resources surveys.
Flowering Plants				
Arizona eryngo	*Eryngium sparganophyllum*	Endangered	Occurs in riparian zones and marshes within Pinyon-Juniper Woodland and Madrean Evergreen Woodland.	Not likely to occur. There are no known occurrences and no known cienegas or marshes in the analysis area. Not observed during vegetation surveys.

Common Name	Scientific Name	Status	Habitat/Distribution	Reason for Analysis or Exclusion
Bartram's stonecrop	*Graptopetalum bartramii*	Threatened	Found in deep, narrow, heavily shaded canyons with erodible soils within Madrean woodlands at elevations ranging from 3,500-6,700 feet. Almost always located near water sources like springs, seeps, or intermittent streams, but above the floodline.	Potential to occur. This species is known to occur in the vicinity of the Action Area. Critical habitat has been proposed but does not overlap with the Action Area. Not observed during biological resources surveys.
Beardless chinchweed	*Pectis imberbis*	Endangered	Found from 3,800-5,700 feet in elevation and are typically found in oak woodlands at higher elevations, as well as desert grasslands and oak savannas at lower elevations. Occur on steep, south-facing, sunny to partially shaded hillslopes, with eroding granite or limestone bedrock.	Potential to occur. This species is known to occur in the vicinity of the analysis area. Critical habitat has been proposed but does not overlap with the Action Area. Not observed during biological resources surveys.
Huachuca water-umbel	*Lilaeopsis schaffneriana* var. *recurva*	Endangered	Huachuca water-umbel occur at elevations ranging from 2,000 to 7,000 feet, in shallow and slow-flowing waters that are relatively stable or in active stream channels containing refugial sites where the plants can escape the effect of scouring floods. The plant depends on the availability of permanently wet, or nearly so, muddy or silty substrates with some organic content.	Not likely to occur. Based on current range maps, habitat requirements, and distance from known occurrences, there is minimal likelihood of this species presence and there are no known occurrences in the analysis area or vicinity (AGFD 2019a). Not observed during biological resources surveys.

Table 3.17. Regional Forester's Sensitive Species That May Occur Within the Analysis Area

Common Name	Scientific Name	Habitat/Distribution	Potential to Occur
Mammals			
Mexican long-tongued bat	*Choeronycteris mexicana*	Found in mesic areas in canyons of mixed oak-conifer forests in mountains rising from the desert. These bats roost in caves and abandoned mines, also found in rock shelters.	No caves or abandoned mines are found in the analysis area. However, there are caves and mines within nearby hillsides/ ridges. Potential foraging habitat is found within the analysis area.
Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	Require spacious cavern-like structures for roosting during all stages of the life cycle, most notably for maternity and winter roosting. This bat is typically found in saxicoline brush, sagebrush, semi-desert scrub, pinyon-juniper woodland, and ponderosa pine woodland.	No caves or abandoned mines are found in the analysis area. However, there are caves and mines within nearby hillsides/ridges. Potential foraging habitat is found within the analysis area.
Spotted bat	*Euderma maculatum*	In southern Arizona, primarily found in dry, rough desertscrub. This bat typically roosts in crevices and cracks in cliff faces and may be found near water sources.	Potential roosting habitat (desertscrub and water sources) is found within analysis area.
Western red bat	*Lasiurus blossevillii*	Preferred habitat includes riparian and wooded areas. This species roosts during the day primarily in trees and breeding is noncolonial.	Potential roosting habitat (riparian and wooded areas) is found within analysis area.
Western yellow bat	*Lasiurus xanthinus*	Found in low-to-mid elevation riparian communities with broad-leaved deciduous trees. They typically roost in trees such as cottonwood, Arizona sycamore (*Plantus wrightii)*, and Arizona white oak (*Quercus arizonica*) but will also use dead palm tree fronds for roosting. Breeding is noncolonial.	Potential roosting habitat (deciduous trees) is found throughout the analysis area. No palm trees were found within the analysis area.
Birds			
Northern goshawk	*Accipiter gentilis*	Generally restricted to wooded areas but may be found in relatively open woods or along edges.	Potential habitat is found within woodlands within the analysis area.
Buff-collared nightjar	*Antrostomus ridgwayi*	In the U.S., found around 4,000 feet elevation in rocky canyons that have trees or dense brush along drainages and sparse growth on hillsides.	Potential habitat is found within canyons of analysis area.
Northern beardless tyrannulet	*Camptostoma imberbe*	Found in woods near streams and favor stands of mesquite or cottonwood-willow groves in Arizona.	Potential habitat is present within streams found in the analysis area.

Common Name	Scientific Name	Habitat/Distribution	Potential to Occur
Broad-billed hummingbird	*Cynanthus latirostris*	Typically found along streamside and foothill oak woodlands. These hummingbirds breed mostly in semi-open habitats at around 3,000-5,000 feet in Arizona.	Broad-billed hummingbirds were observed within and adjacent to the analysis area in oak woodland areas.
Arizona woodpecker	*Dryobates arizonae*	Found exclusively in oaks of foothills and mid-levels of mountains, up into mixed pine-oak woodlands.	Potential habitat within analysis area.
American peregrine falcon	*Falco peregrinus anatum*	Found primarily in open country/ habitats and mountain cliffs, often near water. Limited by availability of nest sites, usually on cliff ledges, sometimes in hollow of broken-off tree snag or in old stick nest of other large birds in a tree.	Potential habitat within canyons with cliffs adjacent to the analysis area.
Abert's towhee	*Melozone aberti*	Found in dense brush near water in arid lowlands (e.g., streamside thickets), edges of ponds or irrigation ditches, understory of cottonwood-willow groves, even riverside marshes.	This species was observed adjacent to the analysis area in the California Gulch area.
Rose-throated becard	*Pachyramphus aglaiae*	In Arizona, usually found along streams at middle elevations, especially in groves of sycamores and cottonwoods.	Potential habitat adjacent to the analysis area, primarily in the California Gulch area.
Elegant trogon	*Trogon elegans*	In Arizona, breeds in canyons through the pine-oak zone of mountains, almost always where sycamores grow along flowing streams.	Potential habitat adjacent to the analysis area, primarily in the California Gulch area.
Thick-billed kingbird	*Tyrannus crassirostris*	Breeds along permanent streams in lowlands and lower canyons, mostly where large sycamores and cottonwoods grow.	Potential habitat adjacent to the analysis area, primarily in the California Gulch area.
Reptiles			
Giant spotted whiptail	*Aspidoscelis stictogramma*	Found in Sonoran and Chihuahuan Desert scrub, semi-desert grassland, inland chaparral and oaks, and oak savanna and woodland. Usually found in montane canyons, slopes, and adjacent bajadas.	Potential habitat within the analysis area.
Sonoran Desert tortoise	*Gopherus morafkai*	Occur primarily on rocky, steep slopes, incised drainages, and bajadas of Mojave Desert scrub and Arizona Upland and Lower Colorado subdivisions of Sonoran Desert scrub.	Potential habitat within the analysis area.
Thornscrub hook-nosed snake	*Gyalopion quadrangulare*	Associated with canyons, arroyos, and drainages. Also found in rolling foothills of mesquite grasslands, including partly cultivated areas.	Potential habitat within the analysis area.

Common Name	Scientific Name	Habitat/Distribution	Potential to Occur
Brown vinesnake	*Oxybelis aeneus*	In Arizona, found in brushy hillsides and canyon bottoms containing oak walnut, sycamore, and wild grapes. Also occurs in riparian areas.	Potential habitat within the analysis area.
Mountain skink	*Plestiodon callicephalus*	In Arizona, found in oak woodland and pine forest, typically under and among rocks and logs in canyons and on hillsides.	Potential habitat within the analysis area.
Green snake	*Senticolis triaspis*	Found in woodlands and chaparral of rocky mountain canyons near streams. Uses rock crevices and underground burrows as shelter.	Potential habitat within the analysis area.
Yaqui black-headed snake	*Tantilla yaquia*	Primarily found in oak woodlands in rolling to rugged terrain in Arizona. Typically found in rocky, wooded canyons and on neighboring slopes.	Potential habitat the within analysis area.
Amphibians			
Tarahumara Frog	*Lithobates tarahumarae*	Typically associated with canyons and deep drought resistant "plunge pools" found amidst boulders or in bedrock.	Potential habitat adjacent to the analysis area, primarily in the California Gulch area.
Lowland leopard frog	*Lithobates yavapaiensis*	Prefer rocky streams in canyons surrounded by conifer forests or ponds and stream pools surrounded by scrub desert. Also found in springs, stock ponds in desert scrub, grassland, woodland, and pinyon-juniper communities.	Potential habitat within the analysis area.
Fish			
Sonora sucker	*Catostomus insignis*	Prefer rocky, relatively deep, and quiet waters. During the day, adult suckers tend to take cover and stay in shaded areas.	Potential habitat adjacent to the analysis area, primarily in the California Gulch area.
Insects			
Sabino Canyon dancer	*Argia sabino*	Closely correlated with water flow in Upper Sonoran riparian vegetation communities and areas with sycamore and ash woodlands.	Potential habitat adjacent to the analysis area, primarily in the California Gulch area.
Plants			
Pima Indian mallow	*Abutilon parishii*	Found on rocky hillsides, cliff bases, canyon bottoms, lower side slopes and ledges of canyons among rocks and boulders within desert scrub and semi-desert grasslands. In riparian zones, occur on flat secondary terraces but typically not in canyon bottoms.	Known to occur and observed within the analysis area. See Table 3.18.
Santa Cruz striped agave	*Agave parviflora* ssp. *parviflora*	Middle elevations of mountains on open rocky or gravelly slopes, in desert grassland and oak woodland between 3,600 and 4,600 feet.	Potential habitat within the analysis area. None found during surveys.

Common Name	Scientific Name	Habitat/Distribution	Potential to Occur
Chiltepin	*Capsicum annuum* var. *glabriusculum*	Found in canyons and slopes of desert riparian habitats in mesquite and oak woodlands. Typically found among boulders and under trees or large shrubs where they receive extra warmth and protection from frost.	Known to occur and observed within the analysis area. See Table 3.18.
Chihuahuan sedge	*Carex chihuahuensis*	Found in wet soil in streambeds, shallower draws in pine-oak forest and riparian woodland. Occur in wet meadows, cienegas, marshy areas, and canyon bottoms.	Potential habitat adjacent to analysis area, primarily within the California Gulch and Holden Canyon areas. None found during surveys.
Cochise sedge	*Carex ultra*	Found in moist soil near perennially wet springs and streams, and in undulating rocky-gravelly terrain.	Potential habitat adjacent to analysis area, primarily within the California Gulch and Holden Canyon areas. None found during surveys.
Santa Cruz star leaf	*Choisya mollis*	Found in canyon bottoms and slopes, usually in the shade of oaks and other trees, or rock outcrops. Found within Madrean Evergreen Woodland communities.	Potential habitat within the analysis area. None found during surveys.
Santa Cruz beehive cactus	*Coryphantha recurvata*	Grows on rocky slopes within desert grasslands and oak woodlands from 3,500 to 5,500 feet elevation. Typically found within open areas in these environments (not found in dense stands of grass).	Known to occur and observed within the analysis area. See Table 3.18.
Gentry's indigo bush	*Dalea tentaculoides*	Found along canyon bottoms on cobble terraces subject to occasional flooding. Occurs in disturbance-prone environments.	Potential habitat adjacent to the analysis area, primarily within the California Gulch and Holden Canyon areas. None found during surveys.
Sonoran bird's-foot trefoil	*Lotus alamosanus*	Restricted to stream banks in canyons. Wetland obligate.	Potential habitat adjacent to the California Gulch and Holden Canyon areas. None found during surveys.
Wiggins milkweed vine	*Metastelma mexicanum*	Found in open slopes within open oak woodland on granite soils over juniper flats. Occurs from 3,500 to 5,500 feet on rocky slopes within desert grasslands and oak woodlands.	Known to occur and observed within the analysis area. See Table 3.18.
Arizona passionflower	*Passiflora arizonica*	Found in rocky hillsides, limestone outcrops, canyon cliffs, and arroyos in the Lower Sonoran Zone. Typically occurs from 3,700 to 5,600 feet among outcrops in desert grasslands	Known to occur and observed within the analysis area. See Table 3.18.
Source: AGFD 2023			

Table 3.18. USFS Sensitive Plant Species Observed within the Analysis Area

Common Name	Scientific Name	Decommissioned Road	New/Improved Road	Total
Pima Indian mallow	*Abutilon parishii*	4	--	4
Chiltepin	*Capsicum annuum* var. *glabriusculum*	--	21	21
Santa Cruz beehive cactus	*Coryphantha recurvata*	25	--	25
Wiggins milkweed vine	*Metastelma mexicanum*	--	1	1
Arizona passionflower	*Passiflora arizonica*	--	4	4
TOTAL PLANTS OBSERVED		**29**	**26**	**55**

USFS Sensitive Plant Species Observed in the Analysis Area

Within the analysis area, five USFS listed sensitive plant species were observed (see Table 3.17 and Table 3.18). Descriptions of the species and habitat where they were found follow.

Pima Indian Mallow: Several *Abutilon* (mallow) species, including *A. palmeri, A. abutiloides* and *A. incanum*, were observed within the analysis area. Pima Indian mallow (*Abultilon parishii*) was observed along one decommissioned road segment within the survey area.

Chiltepin: Five distinct occurrences of chiltepin plants were found within the analysis area, all on north-facing slopes amongst rock outcrops and among tree canopy within the proposed new segment of the Holden Canyon Connector Road. At the time of the survey, dried fruits were present on the chiltepin plants.

Santa Cruz Beehive Cactus: Santa Cruz beehive cactus were found within three proposed decommission roads segments in the analysis area.

Wiggins Milkweed Vine: One specimen of Wiggins milkweed vine was found on a rocky south-facing slope near the proposed new segment of the Holden Canyon Connector Road. Dense grass cover in the area may have obscured observation of other individuals.

Arizona Passionflower: Arizona passionflower (*Passiflora arizonica*) plants found within the analysis area were located in conjunction with boulders in areas of dense grass (predominately Lehmann lovegrass and natal grass) with limited visibility. It is assumed that other individuals may exist that were not observed.

Wildlife

General wildlife observed during surveys or likely to occur within and in the vicinity of the analysis area are described below.

Amphibians: No amphibian species were observed during surveys. Potential amphibian habitat was observed within the shallow stream of California Gulch located adjacent to the analysis area

, an area within the Holden Canyon drainage with ephemeral standing water (see Figure 3.26, Drainage 41, Appendix A), cattle tanks/ponds, and several drainages with shallow running water.

Birds: Birds observed during surveys include the following: white-winged dove (*Zenaida asiatica*), northern mockingbird (*Mimus polyglottos*), Gila woodpecker (*Melanerpes uropygialis*), northern flicker (*Colaptes auratus*), pyrrhuloxia (*Cardinalis sinuatus*), northern cardinal (*Cardinalis cardinalis*), verdin (*Auriparus flaviceps*), black-tailed gnatcatcher (*Polioptile melanura*), hooded oriole (*Icterus cucullatus*), summer tanager (*Piranga rubra*), Bell's vireo (*Vireo bellii*), Abert's towhee (*Pipilo aberti*), black-throated sparrow (*Amphispiza bilineata*), ash-throated flycatcher (*Myiarchus cinerascens*), vermillion flycatcher (*Pyrocephalus rubinus*), broad-billed hummingbird (*Cynanthus latirostris*), Costa's hummingbird (*Calypte costae*), Anna's hummingbird (*Calypte anna*), gray hawk (*Buteo plagiatus*), zone tailed hawk (*Buteo albonotatus*), turkey vulture (*Cathartes aura*), and common raven (*Corvus corax*).

The analysis area is located within an Arizona IBA, called the Atascosa Highlands IBA. The Arizona IBA Program is co-administered by Audubon Arizona and the Tucson Audubon Society in partnership with the AGFD, the Sonoran Joint Venture, Intermountain West Joint Venture, Arizona State Parks, and the USFWS.

Fish: No fish species were observed during surveys. Potential habitat was observed adjacent to the analysis area within the shallow stream of California Gulch. Sonoran chub (*Gila ditaenia*) are known to occur within the California Gulch tributary adjacent to the analysis area.

Mammals: Mammal species observed or detected by sign during surveys include the following: Coues whitetail deer (*Odocoileus virginianus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), mountain lion (*Felis concolor*), bobcat (*Lynx rufus*), javelina (*Tayassu tajacu*), racoon (*Procyon lotor*), round-tailed ground squirrel (*Citellus tereticaudus*), antelope jackrabbit (*Lepus alleni*), and desert cottontail (*Sylvilagus audubonii*). Several species of bats may also occur in the analysis area vicinity based on forage availability and the potential for roosting sites in the area.

Reptiles: Reptiles observed during surveys included whiptail lizard (*Aspidoscelis* sp.), elegant earless lizard (*Holbrookia elegans*), and twin-spotted spiny lizard (*Sceloporus bimaculosus*). A garter snake was encountered; however, the survey crew was not able to identify it to species due to the tall grass and rapid departure of the snake from the area. Common reptiles expected to occur in the analysis area, based on known range and habitat preference, include canyon spotted whiptail (*Aspidoscelis burti*), Sonoran spotted whiptail (*Aspidoscelis sonorae*), glossy snake (*Arizona elegans*), tiger rattlesnake (*Crotalus tigris*), thornscrub hook-nosed snake (*Gyalopion quadrangulare*), hooded nightsnake (*Hypsiglena novum*), common kingsnake (*Lampropeltis getula*), Sonoran whipsnake (*Masticophis bilineatus*), coachwhip (*Masticophis flagellum*), brown vinesnake (*Oxbelis aeneus*), regal horned lizard (*Phrynosoma solare*), gophersnake (*Pituophis catenifer*) green ratsnake (*Senticolis triaspis*), Yaqui black-headed snake (*Tantilla yaquia*), and black-necked gartersnake (*Thamnophis cyrtopsis*; Brennan 2008).

3.12.2 Environmental Consequences

No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, the Nogales Ranger District would continue to manage the Holden Canyon area as directed under the Forest Plan (USFS 2018a), no new road segment would be constructed, and existing USFS road segments may not be improved. In addition, proposed roads to be decommissioned would remain open. Current habitat conditions for wildlife, USFWS listed species, migratory birds, and USFS sensitive species would remain similar to existing conditions, minimal change would be expected. The No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to wildlife, USFWS listed species, migratory birds, and USFS sensitive species resources or noticeable changes in habitat conditions in the analysis area.

Cumulative Impacts

The No Action Alternative would not likely result in adverse or beneficial short- or long-term impacts to wildlife, USFWS listed species, migratory birds, and USFS sensitive species. Therefore, the No Action Alternative would not significantly contribute to cumulative impacts on wildlife, USFWS listed species, migratory birds, and USFS sensitive species when combined with other past, present, or reasonably foreseeable future projects in the analysis area.

Proposed Action Alternative

Direct and Indirect Impacts

Endangered Species Act Listed Species: Potential impacts to Federal Endangered Species Act listed species are detailed below by species with a summary of effects to federally listed species presented in Table 3.19 below.

Table 3.19. Summary of Potential Effects to Federally Listed Species That May Occur within the Analysis Area

Common Name	Scientific Name	Critical Habitat Within Survey Area	Effects Determination
Mammals			
Jaguar (Endangered)	*Panthera onca*	Yes	May Affect, Not Likely to Adversely Affect
Ocelot (Endangered)	*Leopardus* [=*Felis*] *pardalis*	No	May Affect, Not Likely to Adversely Affect
Sonoran pronghorn (Non-essential Experimental Population)	*Antilocarpa americana sonoriensis*	No	Not Likely to Jeopardize the Continued Existence/No Effect
Birds			
Cactus ferruginous pygmy-owl (Threatened)	*Glaucidium brasilianum cactorum*	No	May Affect, Not Likely to Adversely Affect
California least tern (Endangered)	*Sterna antillarum browni*	No	No Effect
Masked bobwhite quail (Endangered)	*Colinus virginianus ridgwayi*	No	No Effect
Mexican spotted owl (Threatened)	*Strix occidentalis lucida*	Yes	May Affect, Not Likely to Adversely Affect

Common Name	Scientific Name	Critical Habitat Within Survey Area	Effects Determination
Southwestern willow flycatcher (Endangered)	*Empidonax traillii extimus*	No	No Effect
Yellow-billed cuckoo (Threatened)	*Coccyzus americanus*	Yes	May Affect, Not Likely to Adversely Affect
Reptiles and Amphibians			
Sonoyta mud turtle (Endangered)	*Kinosternon sonoriense logifemorales*	No	No Effect
Chiricahua leopard frog (Threatened)	*Rana chiricahuensis*	Yes	May Affect, Not Likely to Adversely Affect
Fish			
Gila topminnow (Endangered)	*Poeciliopsis occidentalis*	No	No Effect
Sonora chub (Threatened)	*Gila ditaenia*	No	May Affect, Not Likely to Adversely Affect
Insects			
Monarch butterfly (Candidate)	*Danaus plexippus*	No	Not Expected to Jeopardize the Continued Existence
Plants			
Arizona eryngo (Endangered)	*Eryngium sparganophyllum*	No	No Effect
Bartram's stonecrop (Threatened)	*Braptopetalum bartramii*	No	May Affect, Not Likely to Adversely Affect
Beardless chinchweed (Endangered)	*Pectis imberbis*	No	May Affect, Not Likely to Adversely Affect
Huachuca water-umbel (Endangered)	*Lilaeopsos schaffneriana* var. *recurve*	No	No Effect

The following species that have been determined to not likely occur in the analysis area and would not be impacted by the Proposed Action are not discussed further: Sonoran pronghorn, California least tern, masked bobwhite quail, southwestern willow flycatcher, Gila topminnow, Sonoyta mud turtle, Arizona eryngo, and Huachuca water-umbel.

Jaguar: Jaguars can occur within multiple mountain ranges in southern Arizona, although they are rare. Jaguars have been documented in both the Baboquivari and Atascosa Mountains and traveling between the two using the Altar Valley (McCain and Childs 2008; USFWS 2023a) as well as from mountain ranges in Mexico adjacent to the international border. Openings in the international border barrier provide access to both mountain ranges for traveling jaguars (Wildlands Network 2021).

The occurrences of jaguars in Arizona are rare in any one specific location, making the probability of jaguar presence during Proposed Action implementation unlikely. However, jaguars have been documented crossing into the Nogales Ranger District, so there is the possibility that jaguars could be affected by the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments. During proposed activities, if jaguars were to be present in the area, they would not need to travel far to remain in

cover while traversing the area. Based on the narrow, linear nature of vegetation disturbance under the Proposed Action the potential effects of habitat alteration to jaguars would be negligible. Vehicle collisions would be avoided by limiting speeds on the proposed road segments during construction activities (see Appendix B, AMM measure WR 1).

Jaguar present in the analysis area during improvement, repair, and construction activities could be affected by noise disturbance from equipment use associated with proposed project activities. Construction related equipment would likely create noise at approximately 85 A-weighted decibels (dBA) at approximately 25 feet (Blomberg and Trezza 2021). Noise will typically attenuate with distance by 6 dBA (for hard ground) for every doubling of distance without topographic or other environmental factors (Washington State Department of Transportation 2020). Noise levels would be less than 69 dBA, a threshold used for other noise sensitive listed species (specifically the Mexican spotted owl) at 158 feet from Proposed Action activities. This distance should be easily avoidable by jaguars that may be present and would not need to travel far (about 2,500 feet or 0.45 mile) from the activity location to remain in ambient noise levels (45.4 dBA, average for wilderness areas) to completely avoid noise disturbance from the Proposed Action. Proposed timing restrictions would eliminate noise from equipment during nighttime when jaguars are most active (see Appendix B, AMM measure CIR 10). Given this, the potential noise disturbance effects to jaguars from construction-related equipment are short-term negligible adverse.

The physical and/or biological features (PBFs) of designated critical habitat that support the life history needs of the jaguar for recovery and potential impacts of the Proposed Action to these features are outlined in Table 3.20. These features would be minimally impacted by the Proposed Action.

Table 3.20. Potential Impacts to Jaguar Habitat PBFs

Physical or Biological Features that Support Life History Needs	Potential Impacts
Connectivity to Mexico	No impacts would occur in areas that provide connectivity to Mexico within the critical habitat unit.
Adequate levels of native prey species	Prey species may be temporarily disturbed by noise, equipment, and human activities during construction; however, no long-term change in prey species is likely to occur.
Surface water availability	No impacts to surface waters would occur.
Greater than 1 to 50 percent canopy cover within Madrean evergreen woodland.	Approximately 1.81 acres of Madrean Encinal woodland would be removed; however, no mixed evergreen woodland areas would be impacted by the Proposed Action.
Intermediate, moderately, or highly rugged terrain	Topography of the analysis area would not be impacted by the Proposed Action.
Minimal to no human population density, no major roads, or no stable nighttime lighting over any 0.4 square mile area	The Proposed Action would not change the existing population density. The Holden Canyon Connector Road would not be a major road; however, the road could result in an increase in access to the Holden Canyon area (patrol and recreation). However, overall activity in the area is not likely to increase. The Proposed Action would not require nighttime lighting and would not result in a stable nighttime light over the long-term.
Elevation – Areas of less than 6,562 feet	Elevation of the analysis area would not be impacted by the Proposed Action.

Jaguars are a wide-ranging species and although travel corridors may be affected during construction activities, over the long-term, the proposed new road segment would not be expected to prevent jaguars from using the travel corridors. The main effects to jaguar would result from habitat modification and disturbance from equipment noise and human presence associated with proposed road improvements, repair, construction, and decommissioning activities. The Proposed Action would result in a temporary increase in the human presence and noise within the analysis area which could cause jaguar to avoid the area during the time of implementation. These effects would be temporary and not result in long-term habitat degradation or altered habitat use. However, the Proposed Action would open public access to areas where access has been previously limited and could result in activities that may harm or harass the jaguar. Public use of the area is primarily during daylight hours and outside the typical jaguar activity period (which are primarily nocturnal) and potential impacts from public access would likely be short-term negligible adverse.

Approximately 14.60 acres (3.75 miles of new road construction) of potential suitable jaguar habitat would be impacted from vegetation removal resulting in habitat modification as well as modification of prey species habitat. Decommissioning of 3.57 miles of road segments (4.01 acres) would offset a portion of habitat disturbance and AMM measures would avoid and minimize potential impacts to suitable habitat (see Appendix B).

Portions of the analysis area are located within Unit 2 of jaguar critical habitat (Atascosa Unit) consisting of approximately 144,864 acres in the Tumacacori, Atascosa, and Pajarito Mountains, in Pima and Santa Cruz counties, Arizona (see Figure 3.35, Appendix A). There are approximately 7.04 acres of critical habitat within existing USFS road segments, 13.52 acres within the proposed new road segment, and 1.99 acres within decommissioned road segments (22.55 acres total, approximately 0.0001 percent of the Unit 2 critical habitat area). A discussion of how the Proposed Action would minimally affect the PBFs of critical habitat is presented in Table 3.20.

Based on the above analysis, the Proposed Action **may affect**, **but is not likely to adversely affect**, jaguars in the analysis area or vicinity. Acoustic/auditory and human disturbance to jaguars would be avoided through restriction of operations to day-time hours (see Appendix B, AMM measure CIR 10) and through the short-term nature (less than six months) of ground disturbing activities; therefore, potential acoustic/auditory and human disturbance impacts to jaguar would be unlikely to occur and are considered discountable. Vehicle collisions would be avoided by limiting speeds on the proposed road segments during construction activities (see Appendix B, AMM measure WR 1). Impacts related to potential habitat disturbance would be insignificant due to the small potential habitat impact area for proposed new road construction (linear area, approximately 14.60 acres) and the decommissioning of road segments (4.01 acres) that would offset a portion of habitat disturbance.

The Proposed Action **may affect**, **but is not likely to adversely affect**, jaguar designated critical habitat. Approximately 13.52 acres of critical habitat within the proposed new road segment would be disturbed, predominantly within semidesert grassland (see Table 3.15). Less than 0.0001 percent of the Unit 2 critical habitat area would be disturbed, and the Proposed Action

would not result in direct, indirect, or cumulative effects that would appreciably diminish the value of PBFs; therefore, impacts to critical habitat are considered insignificant.

Ocelot: There are no recent document occurrences of ocelots within the Nogales Ranger District; however, the district is within this species predicted range. The occurrences of ocelots in Arizona are rare in any one specific location, specifically west of Interstate 19, the probability of ocelot presence during project implementation is unlikely (USFWS 2023b). However, if ocelots were present, they could be affected by the proposed improvement, repair, and construction of the Holden Canyon Connector Road, and decommissioning of 18 road segments. During proposed activities, if ocelots were to be present in the analysis area or vicinity, they would not need to travel far to remain in cover while traversing the area. Based on the narrow linear nature of vegetation disturbance under the Proposed Action the potential effects of habitat alteration to ocelots would be negligible.

Ocelots present in the analysis area during improvement, repair, construction, and decommissioning activities could be affected by noise disturbance from equipment use associated with project activities. Noise effects and minimization of effects would be the same as discussed for jaguars.

Based on the above analysis, the Proposed Action **may affect**, **but is not likely to adversely affect**, ocelots in the analysis area or vicinity. Acoustic/auditory and human disturbance to ocelots would be avoided through restriction of operations to day-time hours (see Appendix B, AMM measure CIR 10) and through the short-term nature (less than six months) of ground disturbing activities; therefore, potential acoustic/auditory and human disturbance impacts to ocelots would be unlikely to occur and are considered discountable. Vehicle collisions would be avoided by limiting speeds on the proposed road segments during construction activities (see Appendix B, AMM measure WR 1). Impacts related to habitat disturbance would be insignificant due to the small potential habitat impact area for proposed new road construction (linear area, approximately 14.60 acres) and the decommissioning of road segments (4.01 acres) that would offset a portion of habitat disturbance.

No critical habitat has been designated for this species; therefore, there is no effect to critical habitat.

Cactus Ferruginous Pygmy-owl: There are no documented occurrences of catus ferruginous pygmy-owls (pygmy-owls) in the analysis area or vicinity; however, there is suitable habitat within riparian areas and dense woodland habitat. There is a possibility pygmy-owls could be affected by the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments. Activities related to the Proposed Action would not likely result in the direct mortality of individual pygmy owls due to their ability to fly away from activity areas (high mobility).

The primary impacts to pygmy-owls in suitable habitat within and adjacent to the analysis area would be related to noise disturbance from improvement, repair, construction, and decommissioning activities and loss or disturbance of suitable vegetation that provides cover, breeding, and foraging habitat. Noise effects and AMM measures would be similar to those described for the jaguar. Impacts related to vegetation loss or disturbance would be minimal,

approximately 1.85 acres (see Table 3.15), primarily within Madrean Encinal communities. Decommissioning of 3.57 miles of road segments (4.01 acres) would offset habitat disturbance. AMM measures would also reduce potential impacts to pygmy-owls (see Appendix B).

Based on the above analysis, the Proposed Action **may affect**, **but is not likely to adversely affect**, pygmy-owls in the analysis area or vicinity. Acoustic/auditory and human disturbance to pygmy-owls would be avoided through restriction of operations to day-time hours (see Appendix B, AMM measure CIR 10), and avoidance of the breeding season (see Appendix B, AMM measures SSS 4 and MB 1); therefore, potential acoustic/auditory and human disturbance impacts to pygmy-owls would be unlikely to occur and are considered discountable. Impacts related to habitat disturbance would be insignificant due to the small potential habitat impact area (approximately 1.85 acres [see Table 3.15]), primarily within Madrean Encinal communities, and the decommissioning of road segments (4.01 acres) that would offset a portion of habitat disturbance..

No critical habitat for pygmy-owls occurs within or adjacent to the Action Area; therefore, the Proposed Action would have no effect on designated critical habitat for this species.

Mexican Spotted Owl: There are documented occurrences of Mexican spotted owl in the analysis area vicinity, primarily in denser woodland areas. A Mexican spotted owl Protected Activity Center is located in Sycamore Canyon in the vicinity of the analysis area. There is a possibility Mexican spotted owl could be affected by the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments. Activities related to the Proposed Action would not likely result in the direct mortality of individual Mexican spotted owl due to their ability to fly away from activity areas (high mobility). Potential impacts to Mexican spotted owls would be similar to those discussed above for pygmy-owls. No impacts would occur within or adjacent to the Protected Activity Center. In addition, AMM measures include limitations on improvement, repair, construction, and decommissioning activities during the breeding season (see Appendix B).

The analysis area is located within Mexican spotted owl critical habitat Unit BR-W-13, which consists of 54,735 acres (USFWS 2004; see Figure 3.35, Appendix A). There are approximately 1.02 acres of critical habitat within decommissioned road segments of the analysis area (approximately 0.00002 percent of critical habitat in the Nogales Ranger District and vicinity).

The PBFs of designated critical habitat that support the life history needs of the Mexican spotted owl for recovery and potential impacts of the Proposed Action to these features are outlined in Table 3.21 below (USFWS 2012a). These features would be minimally impacted by the Proposed Action.

Table 3.21. Potential Impacts to Mexican Spotted Owl Critical Habitat PBFs

Physical or Biological Features that Support Life History Needs	Potential Impacts
1. Elements Related to Forest Structure: • A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 percent to 45 percent of which are large trees with a trunk diameter of 12 inches (0.3 meters) or more when measured at 4.5 feet (1.4 meters) from the ground; • A shade canopy created by the tree branches covering 40 percent or more of the ground; and, • Large dead trees (snags) with a trunk diameter of at least 12 inches (0.3 meters) when measured at 4.5 feet (1.4 meters) from the ground.	Minimal impacts to forest structure would occur. The majority of the Proposed Action would occur within grassland biotic communities.
2. Elements Related to Maintenance of Adequate Prey Species: • High volumes of fallen trees and other woody debris; • A wide range of tree and plant species, including hardwoods; and, • Adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration.	Prey species may be temporarily disturbed by noise, equipment, and human activities during construction; however, no long-term change in prey species is likely to occur.
3. Elements Related to Canyon Habitat (one or more of the following): • Presence of water (often providing cooler and often higher humidity than the surrounding areas; • Clumps or stringers of mixed conifer, pine-oak, pinyon-juniper, and/or riparian vegetation; • Canyon wall containing crevices, ledges, or caves; and, • High percentage of ground litter and woody debris.	Minimal impacts to canyon habitat would occur. The majority of canyon habitat occurs within decommissioned road segments, which would be closed. Temporary impacts may occur during decommissioning activities, primarily related to noise and human presence.

Based on the above analysis, the Proposed Action **may affect**, **but is not likely to adversely affect**, Mexican spotted owl in the analysis area and vicinity. Acoustic/auditory and human disturbance to Mexican spotted owls would be avoided through restriction of operations to day-time hours (see Appendix B, AMM measure CIR 10), and avoidance of the breeding season (see Appendix B, AMM measures SSS 4 and MB 1); therefore, potential acoustic/auditory and human disturbance impacts to Mexican spotted owls would be unlikely to occur and are considered discountable. Impacts related to habitat disturbance would be insignificant due to the small potential habitat impact area (approximately 1.85 acres, see Table 3.15), primarily within Madrean Encinal communities, and the decommissioning of road segments (4.01 acres) that would offset a portion of habitat disturbance.

The Proposed Action **may affect**, **but is not likely to adversely affect**, Mexican spotted owl designated critical habitat. Mexican spotted owl critical habitat is found within decommissioned road segments (1.02 acres) that would be temporarily disturbed during tilling and seeding (with a

USFS approved native seed mix) activities; however, over the long-term, the road segments would have vegetative cover and be closed to vehicle use, which would be a beneficial effect. Effects to critical habitat would be insignificant due to the small potential impact area (1.02 acres).

Yellow-billed Cuckoo: There are recent documented occurrences of yellow-billed cuckoo in the analysis area vicinity, primarily within canyons areas such as California Gulch, Sycamore Canyon, and Holden Canyon. Survey results in the Nogales Ranger District have documented yellow-billed cuckoo, including breeding behavior, in Madrean Oak and Pine-Oak Woodland, Mesquite Woodland, Juniper Woodland, and dense Sonoran Desert scrub, primarily at elevations ranging from 3,500 to 5,500 feet (Coronado National Forest 2019).

There is a possibility that yellow-billed cuckoo could be affected by proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments. Activities related to the Proposed Action would not likely result in the direct mortality of individual yellow-billed cuckoos due to their ability to fly away from activity areas (high mobility). Potential impacts to yellow-billed cuckoo would be similar to those discussed above for pygmy-owls. In addition, AMM measures include limitations on improvement, repair, construction, and decommissioning activities during the breeding season (see Appendix B).

The PBFs that support the life history needs of the yellow-billed cuckoo for recovery and potential impacts of the Proposed Action to these features are outlined in Table 3.22. These features would be minimally impacted by the Proposed Action.

Table 3.22. Potential Impacts to Yellow-billed Cuckoo Habitat PBFs

Physical or Biological Features That Support Life History Needs	Potential Impacts
Riparian Woodlands	No impacts to vegetation would occur within riparian woodlands.
Adequate Prey Base	Prey species may be temporarily disturbed by noise, equipment, and human activities during construction; however, no long-term change in prey species is likely to occur.
Dynamic Riverine Processes	No impacts would occur within dynamic riverine areas.

The analysis area is located adjacent to Unit 44 (California Gulch; see Figure 3.35, Appendix A), west of Unit 45 (Sycamore Canyon), and east of Unit 52 (Pena Blanca Lake) of yellow-billed cuckoo critical habitat (9.70 acres within the Nogales Ranger District; USFWS 2021a). There is no yellow-billed cuckoo critical habitat within the analysis area (see Figure 3.35. PBFs for the yellow-billed cuckoo would not be affected during Proposed Action activities (see Table 3.22).

Based on the above analysis, the Proposed Action **may affect**, **but is not likely to adversely affect**, yellow-billed cuckoo in the analysis area and vicinity. Acoustic/auditory and human disturbance to yellow-billed cuckoo would be avoided through restriction of operations to day-time hours (see Appendix B, AMM measure CIR 10), and avoidance of the breeding season (see Appendix B, AMM measures SSS 4 and MB 1); therefore, potential acoustic/auditory and human disturbance impacts to yellow-billed cuckoo would be unlikely to occur and are considered discountable. Impacts related to habitat disturbance would be insignificant due to the small potential habitat impact area (1.81 acres of Madrean Encinal biotic communities), and the

decommissioning of road segments (4.01 acres) that would offset a portion of habitat disturbance.

The Proposed Action would have **no effect** on yellow-billed cuckoo designated critical habitat.

Chiricahua Leopard Frog: There are no known Chiricahua leopard frog populations within the analysis area; however, these frogs have been known to occur in the California Gulch and Sycamore Canyon areas north and east of the analysis area. There are also documented occurrences of Chiricahua leopard frogs in stock ponds and other suitable habitat areas in the eastern portion of the analysis area (AGFD 2022b). Chiricahua leopard frogs are known to disperse one mile overland, three miles in intermittent drainages, and five miles in perennial drainages (USFWS 2007). There is a possibility they could be affected by the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments.

Activities related to the Proposed Action may result in an increased potential for vehicle crushing or injury to Chiricahua leopard frogs in areas within or adjacent to suitable habitat. These frogs could also be impacted by construction and human related noise and disturbance in the vicinity of suitable habitat, which can cause disruption of breeding, predator avoidance, and disruption of foraging. Indirect effects could occur from stormwater runoff or an increase in sedimentation during construction activities within or adjacent to water sources. The recovery plan lists road construction as one of the threats to habitat or range of the Chiricahua leopard frog. However, the recovery plan also discussed chytridiomycosis and predation by non-native species as consistently more important threats than habitat-based factors (USFWS 2007).

The analysis area is located within Chiricahua leopard frog critical habitat Unit 1 (Tumacacori-Atascosa-Pajarito Mountains, Arizona and Mexico), which consists of 2,394 acres (USFWS 2012b; see Figure 3.35, Appendix A). There is approximately 0.03 acres of critical habitat within existing road segments of the survey area, consisting primarily of dispersal habitat.

The PBFs of designated critical habitat that support the life history needs of the Chiricahua leopard frogs for recovery and potential impacts of the Proposed Action to these features are outlined in Table 3.23 below (USFWS 2012b). These features would be minimally impacted by the Proposed Action.

Table 3.23. Potential Impacts to Chiricahua Leopard Frog Critical Habitat PBFs

Physical or Biological Features that Support Life History Needs	Potential Impacts
1. Aquatic breeding habitat and immediately adjacent uplands exhibiting the following characteristics: a) Standing bodies of fresh water, including natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, off-channel pools, and other ephemeral or permanent water bodies that typically hold water or rarely dry for more than a month. b) Emergent and/or submerged vegetation, root masses, undercut banks, fractured rock substrates, or some combination thereof, but emergent vegetation does not completely cover the surface of water bodies. c) Nonnative predators absent or occurring at levels that do not preclude presence of the Chiricahua leopard frog. d) Absence of chytridiomycosis, or if present, then environmental, physiological, and genetic conditions are such that allow persistence of Chiricahua leopard frogs. e) Upland habitats that provide opportunities for foraging and basking that are immediately adjacent to or surrounding breeding aquatic and riparian habitat.	Negligible impacts to aquatic habitat and adjacent upland areas. Impacts to critical habitat would be minimal and within an existing road segment where activities would consist of improvement and repair with no widening of the existing road.
2. Dispersal and nonbreeding habitat, consisting of areas with ephemeral, intermittent, or perennial water that are generally not suitable for breeding, and associated upland or riparian habitat that provides corridors (overland movement or along wetted drainages) for frogs among breeding sites in a metapopulation with the following characteristics: a) Are not more than 1.0 mile overland, 3.0 miles along ephemeral or intermittent drainages, 5.0 miles along perennial drainages, or some combination thereof not to exceed 5.0 miles. b) In overland and nonwetted corridors, provide some vegetation cover or structural features for shelter, forage, and protection from predators; in wetted corridors, provide some ephemeral, intermittent, or perennial aquatic habitat. c) Are free of barriers that block movement by Chiricahua leopard frogs, including, but not limited to, urban, industrial, or agricultural development; reservoirs that are 50 acres or more in size and contain non-native predatory fish, bullfrogs, or crayfish; highways that do not include frog fencing and culverts; and walls, major dams, or other structures that physically block movement.	Negligible impacts to dispersal and nonbreeding habitat expected. No known breeding sites are located within or adjacent to the analysis area.

Based on the above analysis, the Proposed Action **may affect, but is not likely to adversely affect**, Chiricahua leopard frogs in the analysis area and vicinity. Noise and human disturbance to Chiricahua leopard frogs would be minimized through restriction of operations during the dispersal season, which coincides with the migratory bird breeding season (see Appendix B, AMM measure SSS 4) as well as species-specific measures (see Appendix B, AMM measures Frog 1 through Frog 3). Potential sedimentation and erosion impacts would be minimized

through general and species-specific avoidance and minimization measures (see Appendix B, AMM measures EC 1 through EC 5). There are no known Chiricahua leopard frog populations within the analysis area; however, these frogs have been known to occur in California Gulch, located adjacent to the analysis area. The California Gulch riparian area would not be disturbed under the Proposed Action. Therefore, potential effects of the Proposed Action would be considered insignificant.

The Proposed Action **may affect, but is not likely to adversely affect**, Chiricahua leopard frog designated critical habitat. Chiricahua leopard frog critical habitat is found within the proposed new road segment (0.03 acre) along a linear area that may be suitable dispersal habitat. Effects to critical habitat would be insignificant due to the small impact area and disturbance during a short-term period during construction (0.03 acre), which would occur outside the breeding and dispersal period. Once construction is complete, the road segment would not impede frogs from using the area for dispersal.

Sonora Chub: There is a known population of Sonora chub within the California Gulch tributary, which is adjacent to proposed decommission road segments of the analysis area. Sonora chub have been reliably present in suitable habitat from the International Boundary upstream to the tinaja (a deep, perennial pool situated just below a small dam) of California Gulch (USFWS 2023c). There is a possibility this species could be affected by the proposed decommissioning of road segments adjacent to the California Gulch area. Potential impacts would be the same as discussed for the Gila topminnow above. Decommissioning activities in the vicinity would be short-term, and AMM measures would be implemented to reduce the potential for sedimentation and erosion within the tributary. Beneficial effects would result from the long-term decommissioning of the road segments and closure to motorized travel which would result in a reduction in stormwater runoff, sedimentation, and erosion.

Critical habitat has been designated for Sonora chub in Sycamore Canyon. The analysis area is not located within or adjacent to the Sycamore Canyon critical habitat unit and no impacts to critical habitat would occur from proposed improvement, repair, construction, or decommissioning activities.

Based on the above analysis, the Proposed Action **may affect, but is not likely to adversely affect**, Sonora chub in the analysis area and vicinity. Potential sedimentation and erosion impacts in the California Gulch vicinity would be minimized through erosion control AMM measures (see Appendix B, AMM measures EC 1 through EC 5) and the California Gulch riparian area proposed for decommissioning has been designated as an avoidance area and no ground disturbance activities would occur. Therefore, potential effects of the Proposed Action would be considered insignificant.

No critical habitat for Sonora chub occurs within or adjacent to the Action Area; therefore, the Proposed Action would have no effect on designated critical habitat for this species.

Monarch Butterfly: Monarch butterflies have been documented to occur within the Nogales Ranger District. Several occurrences have been reported in the Sycamore Canyon and California Gulch areas (Morris et al. 2015). Potential foraging habitat for this butterfly species exists throughout the analysis area; however, the majority of known occurrences have been in riparian

communities. There is a possibility that monarch butterflies could be affected by the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments.

Studies have been conducted related to the effects of roadways on monarch butterfly populations (Kantola et al. 2019). The general conclusion of the studies was that road mortality is a factor in population declines of pollinators in general, and monarch butterflies specifically. However, the roads in the study had a much higher traffic volume and speeds than the proposed Holden Canyon Connector Road would have (paved commuter roads as opposed to unpaved Maintenance Level 2 USFS roads). The potential direct impacts to monarch butterflies from patrol and recreational use within the analysis area is likely minimal overall.

The primary impact from road projects on monarch butterflies is considered to be the permanent loss of habitat due to the conversion of land from native vegetation to impermeable surface (Kantola et al. 2019). Approximately 14.93 acres of biotic community vegetation would be disturbed and removed during construction of the Proposed Action (see Table 3.15). Based on the amount of suitable habitat within the analysis area and vicinity, the loss of approximately 14.93 acres would likely be insignificant and would not be expected to jeopardize the continued existence of monarch butterfly populations found in southern Arizona. In addition, the decommissioning of 18 road segments would offset the development of the proposed new road with the closure of approximately 4.01 acres (see Table 3.15), reducing the potential impact to monarch butterfly suitable habitat in the analysis area.

The Proposed Action **would not be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery** of the monarch butterfly in the wild by reducing the reproduction, numbers, or distribution of the species.

Bartram's Stonecrop: Bartram's stonecrop plants have been documented to occur in the Holden Canyon area approximately 2 miles upstream and north of the analysis area (USFWS 2020 and 2023d). This plant species has also been observed approximately 4 miles west of the western portion of the analysis area (USFWS 2020); however, it has not been observed within or adjacent to the analysis area (AGFD 2019c).

Current threats to Bartram's stonecrop populations include erosion, sedimentation, and burial from recreation trails and roads, cross-border human activity, and trampling from humans (USFWS 2020). Activities related to the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of 18 road segments could result in erosion and sedimentation of areas downstream from construction. Activities related to the Proposed Action would likely produce fugitive dust, which could coat Bartram's stonecrop plants if located nearby, and result in impacts to physiological and biochemical processes and potentially reduce pollination. The effects of fugitive dust would minimize with greater distances from disturbance and road areas. However, known populations of Bartram's stonecrop are located approximately 2 miles from the analysis area and not likely to be affected by erosion, sedimentation, and fugitive dust related to the Proposed Action. AMM measures for soil and water resources, as well as for this plant species, would minimize potential impacts to potential habitat.

Based on the above analysis, the Proposed Action **may affect, but is not likely to adversely affect**, Bartram's stonecrop plants in the analysis area vicinity. There is minimal suitable habitat for this plant species within the analysis area and no plants were found during biological resources surveys (including special status plant survey). AMM measures for erosion control (see Appendix B, AMM measures EC 1 through EC 5), as well as for this plant species (see Appendix B, AMM measure SSS Plant 1), would minimize potential impacts.

Impacts related to habitat disturbance would be insignificant due to the small potential habitat impact area (approximately 1.85 acres (see Table 3.15), primarily within Madrean Encinal communities, and the decommissioning of road segments (401 acres) that would offset a portion of habitat disturbance.

No critical habitat has been designated for this species; therefore, there is no effect to critical habitat.

Beardless Chinchweed: There are element occurrences of this plant species primarily in the eastern portion of the analysis area vicinity and the analysis area is within the species range (AGFD 2019d; USFWS 2023e). Beardless chinchweed could occur on sunny or partially shady south-facing slopes in grasslands, oak savannas, and oak woodlands between 3,799 and 5,699 feet within the analysis area.

Activities related to the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments could result in impacts to this species from trampling during construction activities and fugitive dust emissions (see summary of dust related impacts under Bartram's stonecrop). AMM measures for soil and water resources, as well as for this plant species, would minimize potential impacts.

Based on the above analysis, the Proposed Action **may affect, but is not likely to adversely affect**, beardless chinchweed plants in the analysis area and vicinity. Based on the analysis area survey and the botanist's analysis of vegetation, species habitat requirements, and known locations, it was determined that there is minimal suitable habitat for this plant species within the analysis area and no plants were found during biological resources surveys (including special status plant survey). AMM measures for erosion control (see Appendix B, AMM measures EC 1 through EC 5), as well as for this plant species (see Appendix B, AMM measures SSS Plant 1), would minimize potential impacts.

Critical habitat for this species does not overlap with the Action Area (USFWS 2021b); therefore, the Proposed Action would have no effect on designated critical habitat for this species.

Wildlife, Migratory Birds and USFS Sensitive Species: Temporally, the potential on-site and off-site impacts resulting from the Proposed Action encompass all the activities associated with construction (approximately six months) and vehicular use (indefinite) of the proposed Holden Canyon Connector Road. Activities related to the proposed improvement, repair, and construction of the Holden Canyon Connector Road and decommissioning of road segments could result in wildlife, migratory birds, and USFS Sensitive Species being temporarily flushed from the immediate area due to disturbance from the presence of construction equipment and

personnel. Activities related to the Proposed Action would not likely result in the direct mortality of individual migratory or special status birds due to their ability to fly away from construction areas (high mobility). Potential indirect impacts include habitat degradation associated with alterations in hydrology, increased potential for invasive species and fire, and fugitive dust covering vegetation used for cover, forage, and nesting.

The approximately 14.93 acres of disturbance to biotic communities within the proposed new road segment (3.75 miles) would result in wildlife, migratory birds, and USFS Sensitive Species habitat loss; however, habitat loss would be minimal as compared to adjacent available habitat. In addition, decommissioning of 3.57 miles of road segments would result in the closure of approximately 4.01 acres, reducing habitat loss for wildlife, migratory birds, and USFS Sensitive Species in the analysis area. No habitat loss is expected within the existing road segments that will be improved and repaired (8.68 miles, approximately 14.60 acres). Implementation of AMM measures outlined in Appendix B for wildlife, migratory birds, and USFS Sensitive Species resources would avoid and minimize potential adverse impacts. The Proposed Action would not likely result in significant habitat degradation, and direct and indirect adverse impacts to wildlife, migratory birds, and USFS Sensitive Species would be negligible. The Proposed Action would result in short-term, negligible adverse impacts to wildlife, migratory birds, and USFS Sensitive Species, with no long-term adverse impacts anticipated. Long-term minor beneficial impacts would occur from the decommissioning of 18 road segments, resulting in the closure of approximately 4.01 acres of potential habitat for wildlife, migratory birds, and USFS Sensitive Species.

Cumulative Impacts

Endangered Species Act Listed Species: Within the analysis area, the Coronado National Forest manages most lands that are important habitat for threatened and endangered species and most activities that could affect threatened and endangered species are Federal activities subject to Section 7 consultation and therefore not considered in the cumulative effects analysis.

Activities in the vicinity of the project area that are reasonably certain to occur in important threatened and endangered species habitat but are not subject to Section 7 analysis include some Department of Homeland Security actions (exempt actions), illegal activities, and actions on private lands. Examples of illegal activities that may affect threatened and endangered species include illegal border activities, inappropriate use of off-highway vehicles, illegal woodcutting, illegal transportation of live wildlife, and poaching. Illegal activities are difficult to predict and are assumed to occur indefinitely and uniformly throughout the vicinity of the Nogales Ranger District and are not expected to have a significant contribution to the adverse impacts from the Proposed Action.

Activities occurring on private lands adjacent to the analysis area may include ranching, road maintenance, and mineral exploration. These activities could potentially affect threatened and endangered species through habitat destruction or degradation and harassment of individuals. Many of the private lands adjacent to the analysis area have already been developed and no new major developments of private lands are expected to occur; therefore, future activities on private lands are not expected to contribute to adverse impacts to threatened and endangered species or their critical habitat from the Proposed Action.

CBP has prepared a BA and is conducting Section 7 consultation with the USFWS regarding the potential effects of the Proposed Action on federally listed species. CBP proposes effects determinations of "no effect" to "may affect, not likely to adversely affect" for federally listed species that may occur in the action areas. Furthermore, AMM measures as outlined in Appendix B would be implemented to avoid and minimize potential impacts on federally listed species. The Proposed Action, when combined with past, present, and reasonably foreseeable actions in the analysis area, would not result in major cumulative impacts on federally listed species or adverse modification of designated Critical Habitats. Any indirect, cumulative impacts on federally listed species would be minor.

Wildlife, Migratory Birds and USFS Sensitive Species: The Proposed Action would result in short-term, negligible adverse impacts; however, minor, long-term beneficial impacts related to the decommissioning of 18 road segments would also occur to wildlife, migratory birds, and USFS Sensitive Species, with no long-term adverse impacts anticipated. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future actions in the analysis area, would not result in significant adverse cumulative impacts to wildlife, migratory birds, and USFS Sensitive Species in the analysis area.

4.0 CONSULTATION AND COORDINATION

4.1 FEDERAL

4.1.1 Tribes

In compliance with Section 106 of the NHPA and various Executive Orders, on September 25, 2023, USFS sent scoping letters describing the Proposed Action to the Tribes listed below (see example letter in Appendix E).

- Ak-Chin Indian Community
- Fort Sill Apache Tribe
- Gila River Indian Community
- Hopi Tribe
- Mescalero Apache Tribe
- Pascua Yaqui Tribe
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Tribe
- Tohono O'odham Nation
- White Mountain Apache Tribe
- Yaqui-Apache Nation
- Pueblo of Zuni

On October 2, 2023, a response was received from the Pascua Yaqui Tribe Tribal Historic Preservation Officer Karl Hoerig stating support for road decommissioning and concerns related the proposed new road segment.

On October 9, 2023, and November 6, 2023, responses were received from the Tohono O'odham Nation Tribal Historic Preservation Officer Peter Steere stating concerns related to activities within or adjacent to cultural sites.

4.1.2 U.S. Fish and Wildlife Service

In compliance with the Section 7(a)(1) of the Endangered Species Act (16 U.S.C. 1531-1544), CBP, in coordination with the USFS, sent a letter to the USFWS on July 22, 2024, to initiate consultation with the USFWS Arizona Ecological Services Field Office for threatened and endangered species that may occur within the analysis area. The submittal also included a BA detailing the potential effects of the Proposed Action on threatened and endangered species.

4.1.3 Army Corps of Engineers

CBP and USFS determined that ephemeral drainages within the analysis area do not meet the criteria to be designated as Waters of the U.S. based on the most up to date Army Corps of Engineers guidance, Revised Definition of "Waters of the United States"; Conforming (September 8, 2023, 88 Federal Register 61964). Therefore, proposed road improvement, repair, construction, and decommissioning activities resulting in temporary disturbance of the ephemeral drainages do not require Clean Water Act Section 401 nor 404 permits.

4.2 STATE

4.2.1 State Historic Preservation Office

USFS is the lead agency for Section 106 consultation under the NHPA (54 U.S.C. Section 306108 and its implementing regulations 36 CFR Part 800) with the Arizona State Historic Preservation Office (SHPO). The USFS will submit the Section 106 consultation documentation to the Arizona SHPO. The documentation will identify the Proposed Action's potential to affect historic properties within the analysis area and requests the SHPO's concurrence with the USFS's finding that the Proposed Action would have no adverse effect on historic properties. The USFS will complete its consultation with the Arizona SHPO prior to preparation of the Final EA or making its decision regarding the need to prepare an Environmental Impact Statement. A summary of NHPA Section 106 consultation and SHPO response will be presented in the Final EA.

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APPENDICES

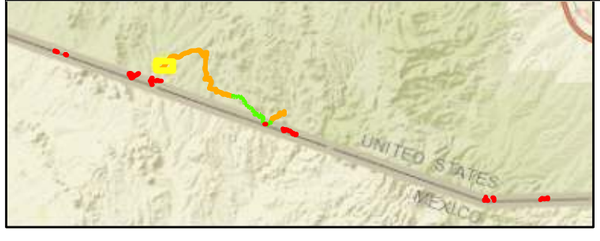
APPENDIX A

Figures

Table A.1. Proposed Holden Canyon Connector Road: Coordinates for Existing and Proposed Decommissioned Roads

USFS Road Number/Name	Latitude	Longitude
Existing Road Segments		
Mojonera Canyon Road (FR 216A)	31.446937000	-111.319717000
Mojonera Canyon Road (FR 216A)	31.437848000	-111.358610000
Senteniel Peak Road (FR 4167)	31.396522000	-111.261258000
Senteniel Peak Road (FR 4167)	31.403859000	-111.249710000
Sierra Canyon Road (FR 4168)	31.430381000	-111.314782000
Sierra Canyon Road (FR 4168)	31.446937000	-111.319717000
Saucito Tank Road (FR 4169)	31.416395000	-111.296381000
Saucito Tank Road (FR 4169)	31.430381000	-111.314782000
Proposed New Road Segment		
Holden Canyon Connector Road	31.396522000	-111.261258000
Holden Canyon Connector Road	31.416395000	-111.296381000
Proposed Decommissioned Road Segments		
Road 149	31.4260635450	-111.3655655230
Road 149	31.4290847190	-111.3671111210
Road 197	31.4341948670	-111.3856892320
Road 197	31.4352327180	-111.3771368880
Road 253	31.4523791360	-111.4479353830
Road 253	31.4532037100	-111.4506471620
Road 328	31.3339497740	-111.0198304620
Road 328	31.3328432690	-111.0191978950
Road 364	31.4291546700	-111.3670156760
Road 364	31.4311682970	-111.3648116840
Road 412	31.3334129150	-111.0228852120
Road 412	31.3327947810	-111.0221374420
Road 421	31.4506274340	-111.4414008790
Road 421	31.4498449910	-111.4402322430
Road 438	31.3859146200	-111.2407283990
Road 438	31.3864375960	-111.2401414760
Road 440	31.4290634940	-111.3622293470
Road 440	31.4286860340	-111.3573041040
Road 467	31.4353170470	-111.3841906960
Road 467	31.4332989440	-111.3819210470
Road 505	31.3858245950	-111.2396411770
Road 505	31.3862720750	-111.2392923110
Road 505	31.3878115190	-111.2436413640
Road 509	31.3945683960	-111.2671109830
Road 509	31.3945929420	-111.2656704280
Road 531	31.3335427690	-111.0727950830
Road 531	31.3328150660	-111.0725231930
Road 564	31.3355532020	-111.0739838490
Road 564	31.3330122080	-111.0757216070
Road 565	31.3326559540	-111.0258933780
Road 565	31.3330247820	-111.0255878090
Road 602	31.3348663510	-111.0682579620
Road 602	31.3325854290	-111.0667012250
Cantina Connector	31.4325650360	-111.3846502620
Cantina Connector	31.4320000070	-111.3820682160

Image Source: Maxar (flown July 2023)

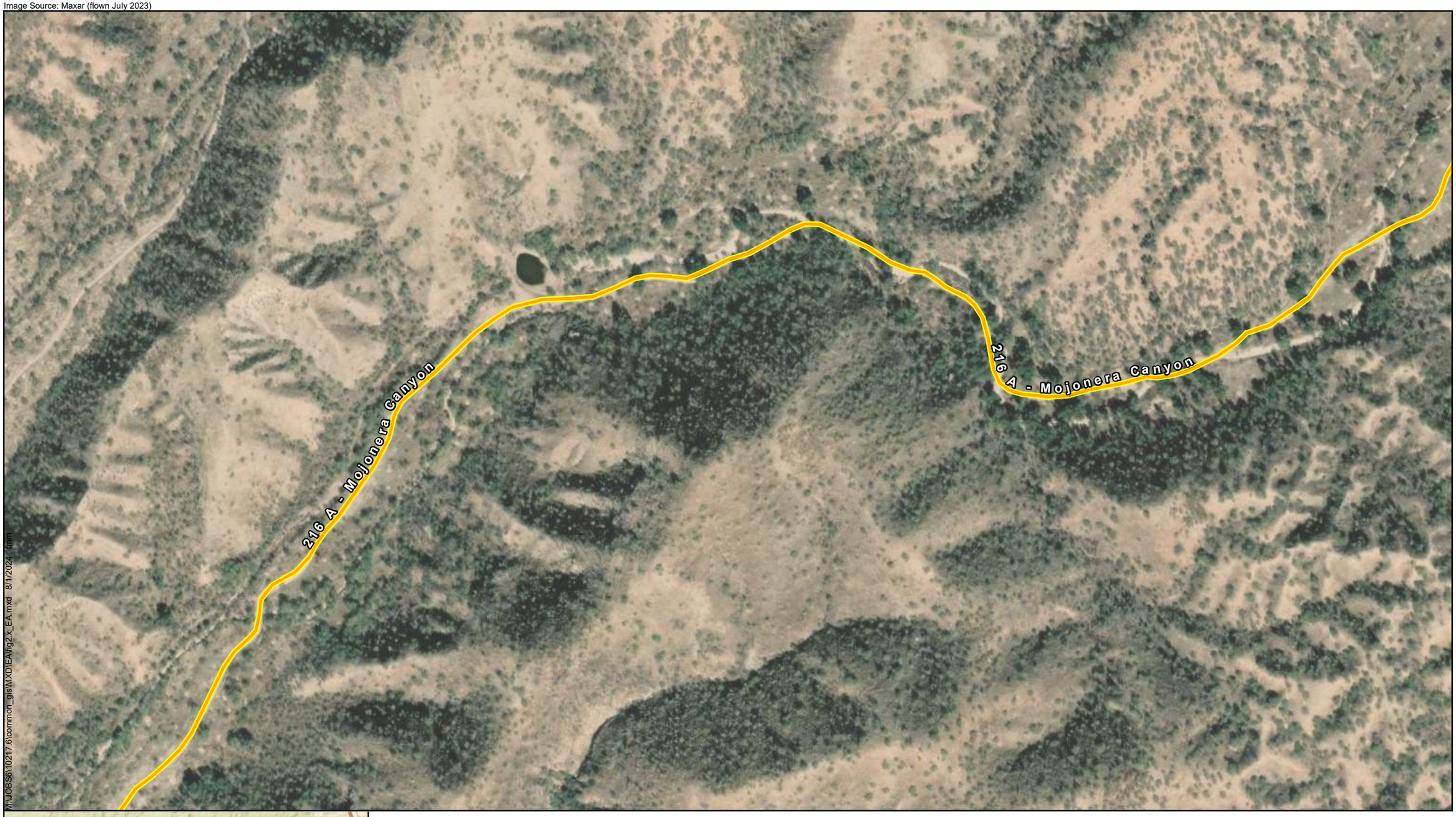


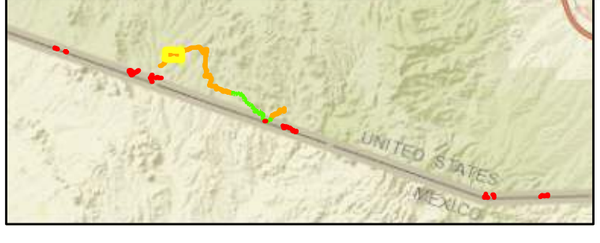
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.1
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)





Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.2
Proposed Holden Canyon Connector Road Project Area Detail

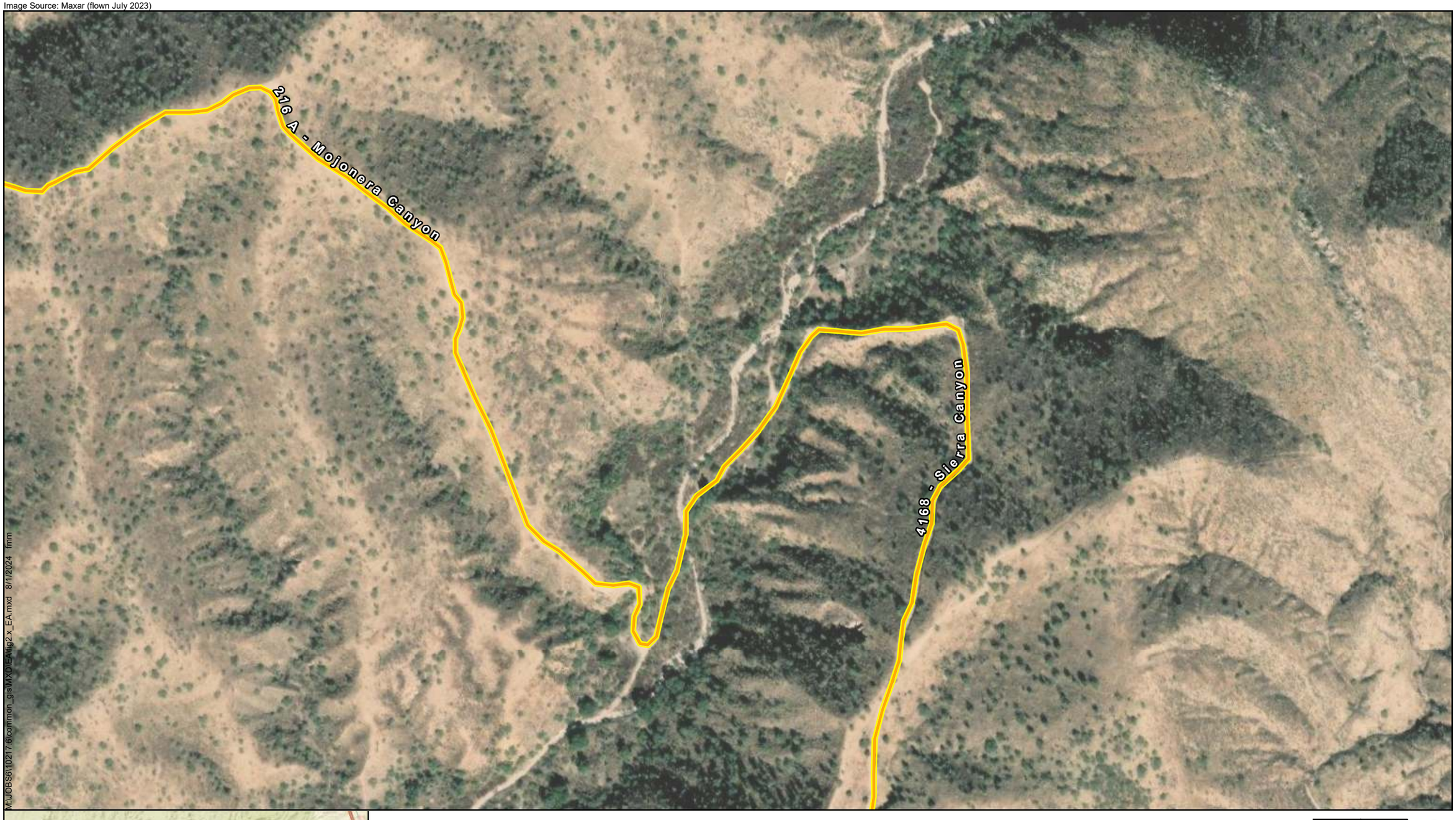
Image Source: Maxar (flown July 2023)

Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.3
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



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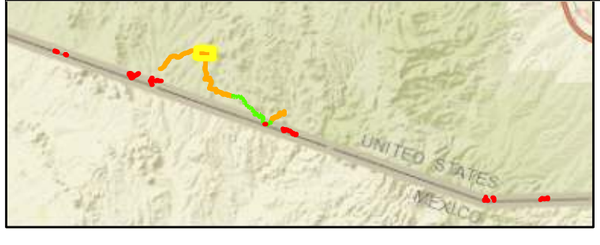
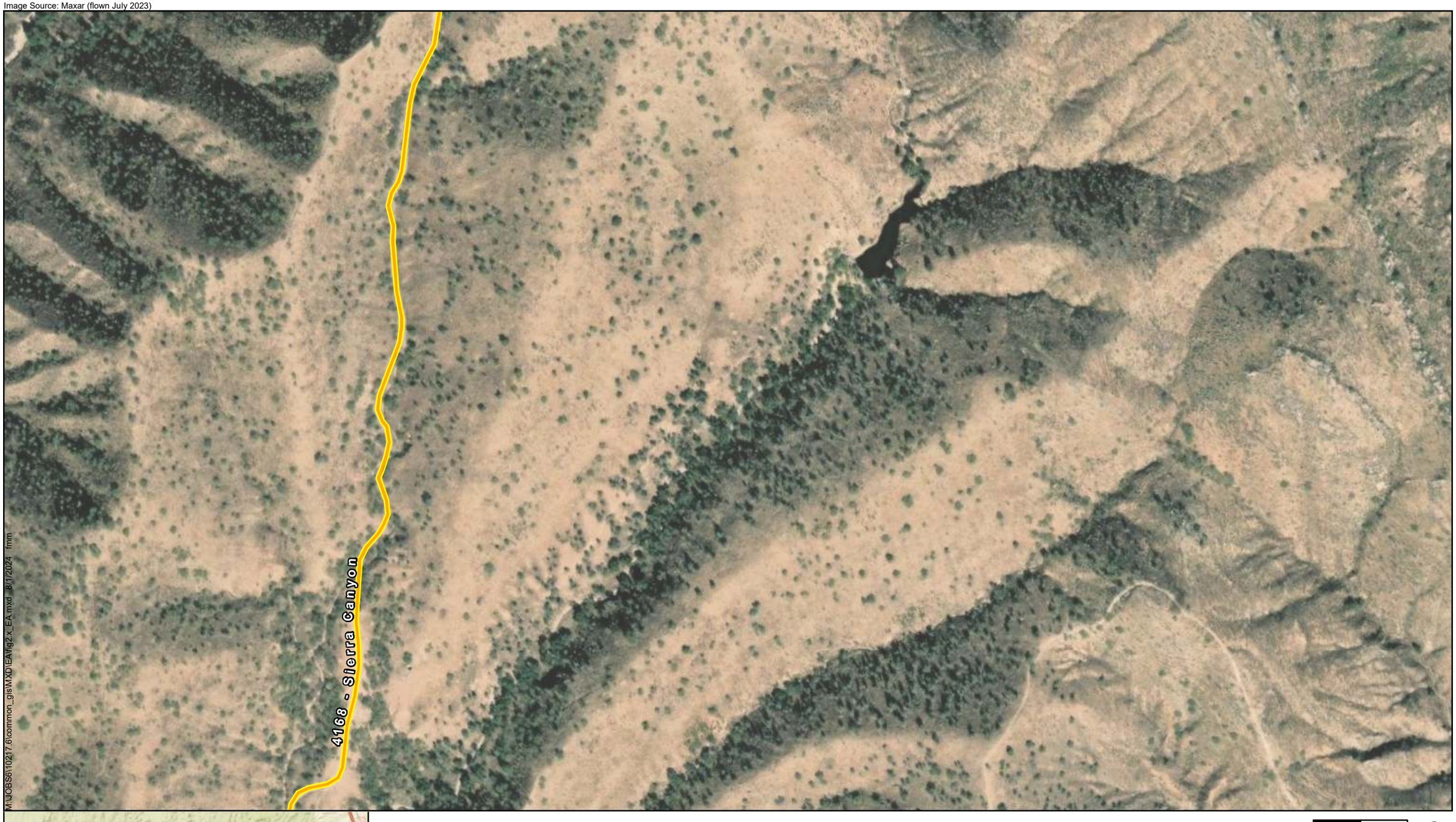


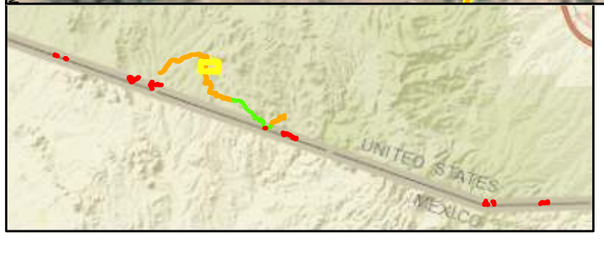
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.4
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



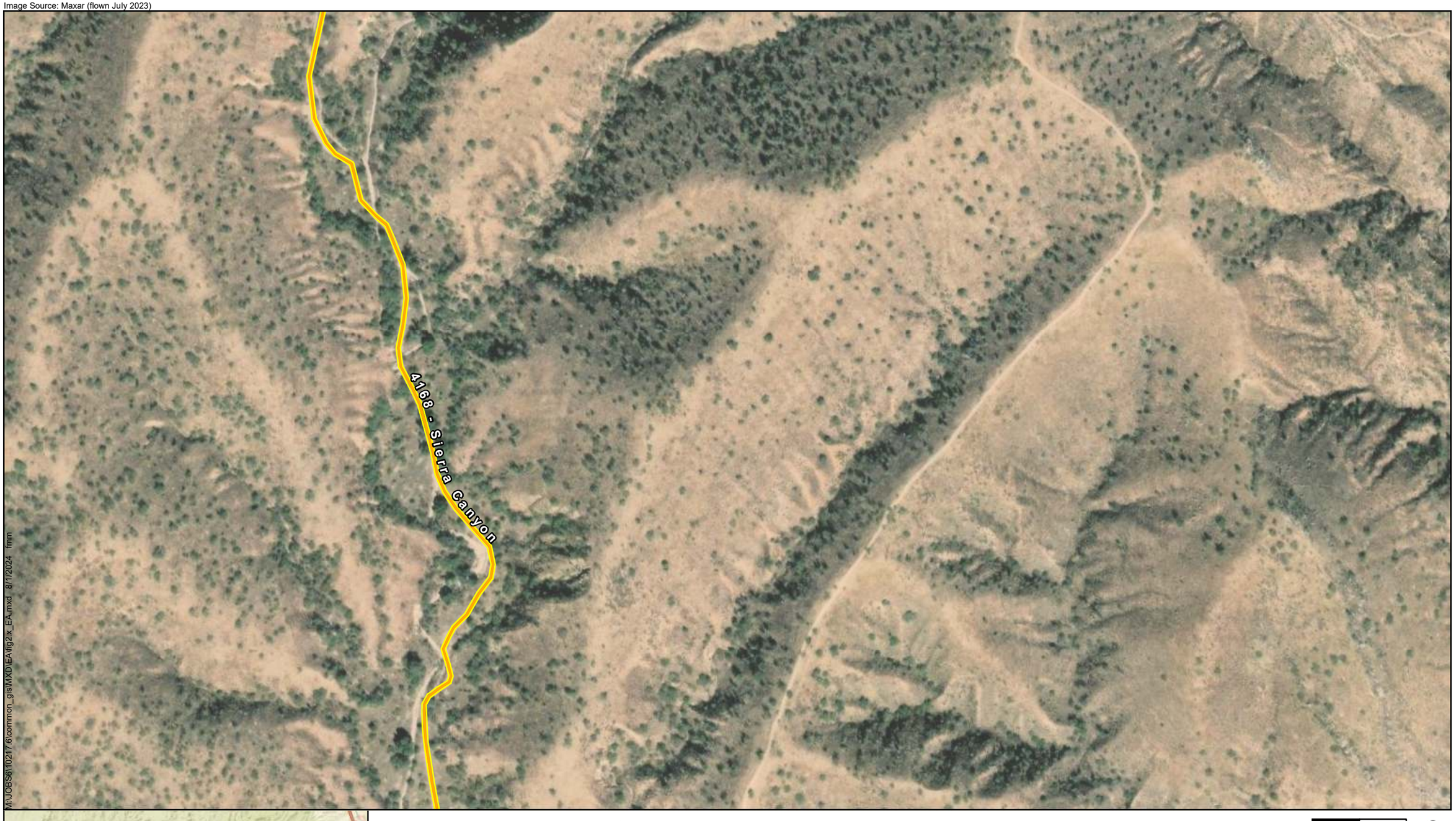


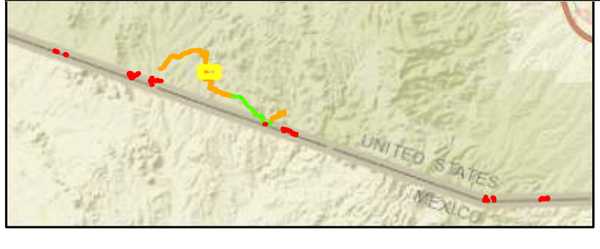
- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- 14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.5
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)





Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.6
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)

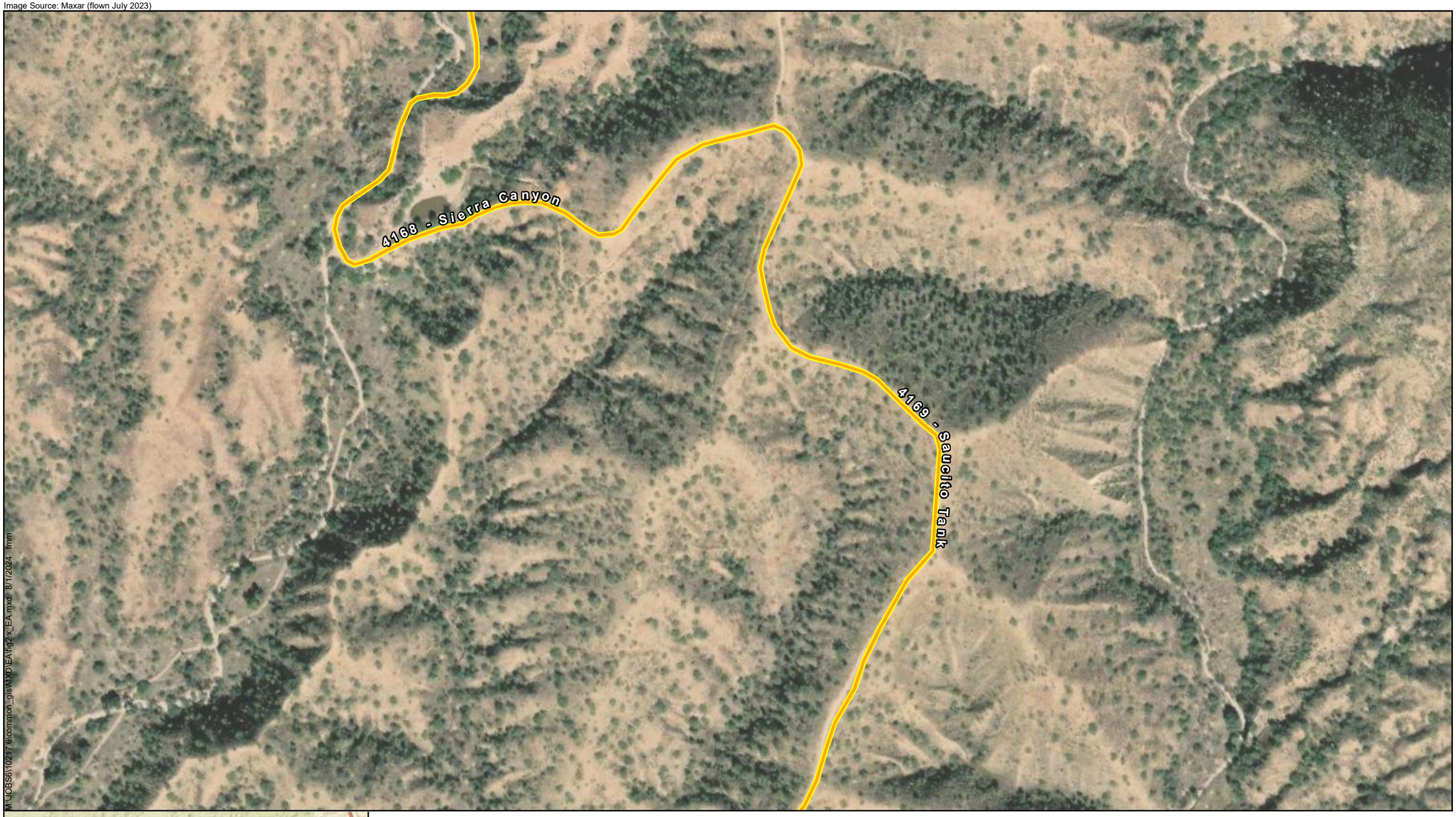
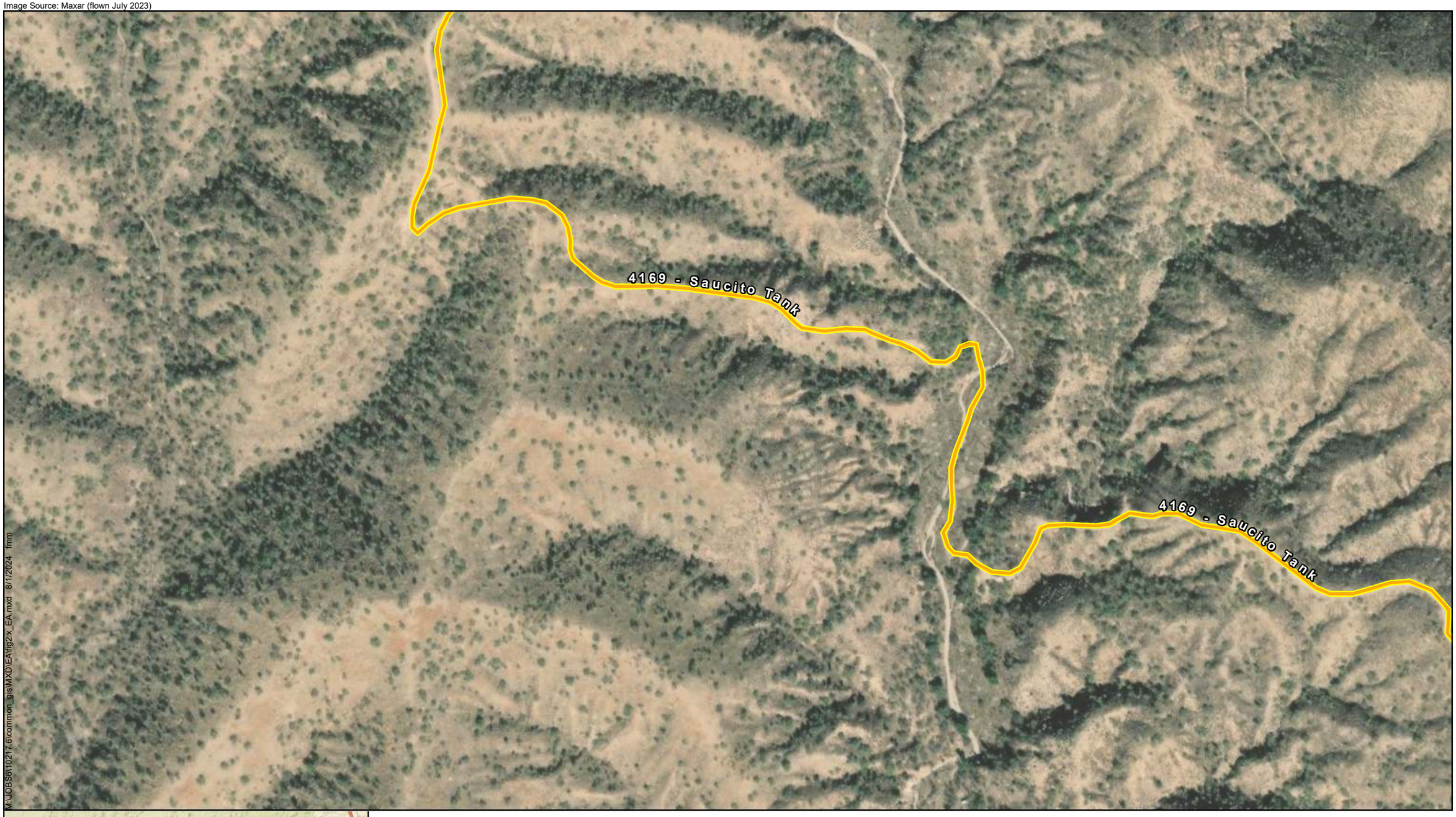
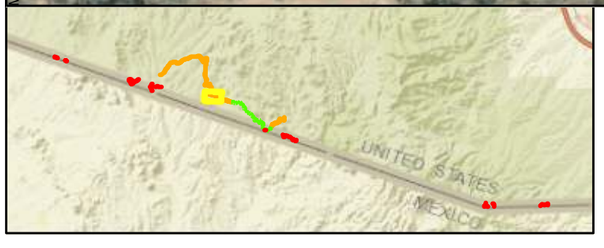


FIGURE 2.7
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



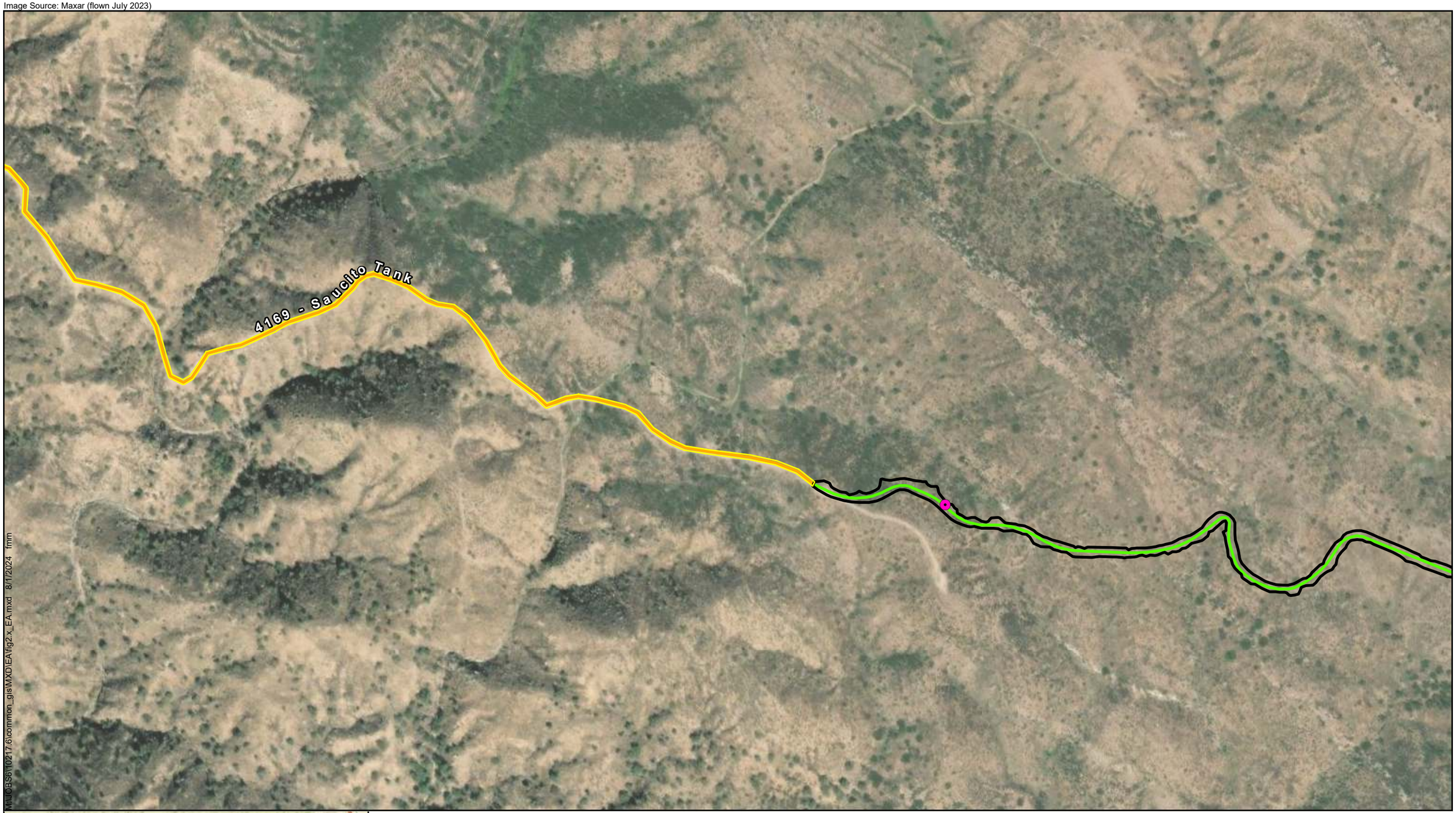


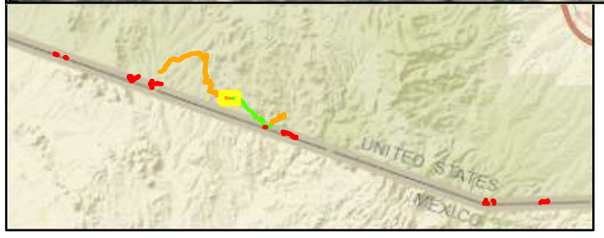
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.8
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



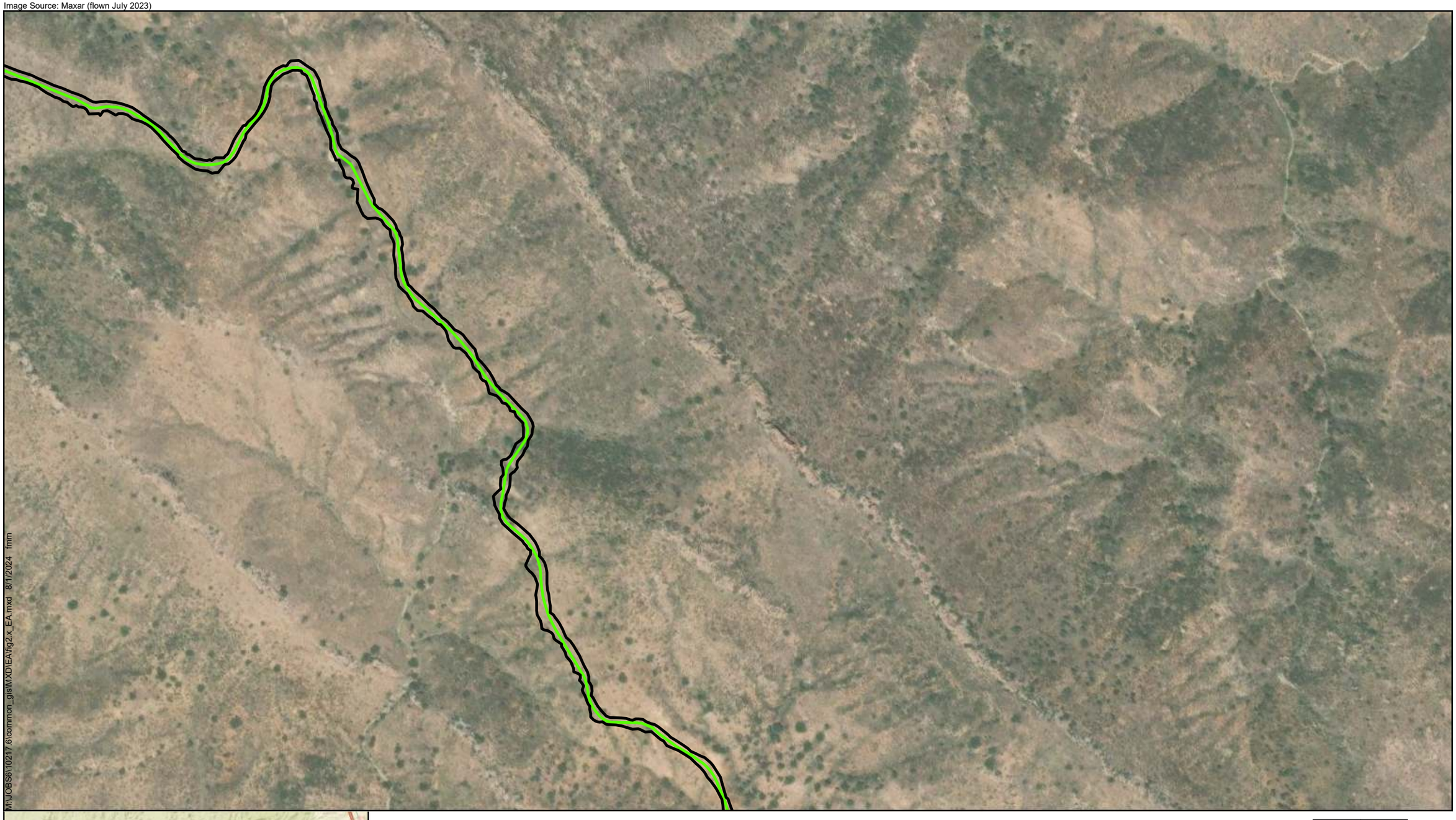


Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
USFS Alignment Disturbance Area
Proposed Cattle Guard

0 Feet 300

FIGURE 2.9
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



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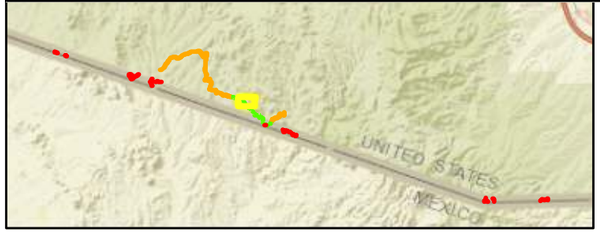

Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
USFS Alignment Disturbance Area

0 Feet 300

FIGURE 2.10
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)

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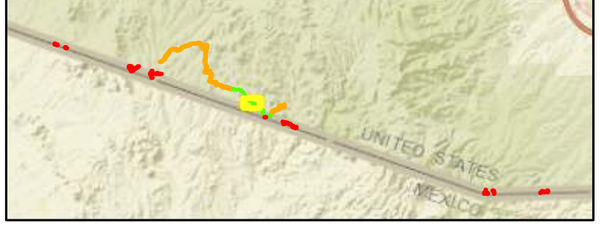

- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- USFS Alignment Disturbance Area

0 Feet 300

FIGURE 2.11
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)

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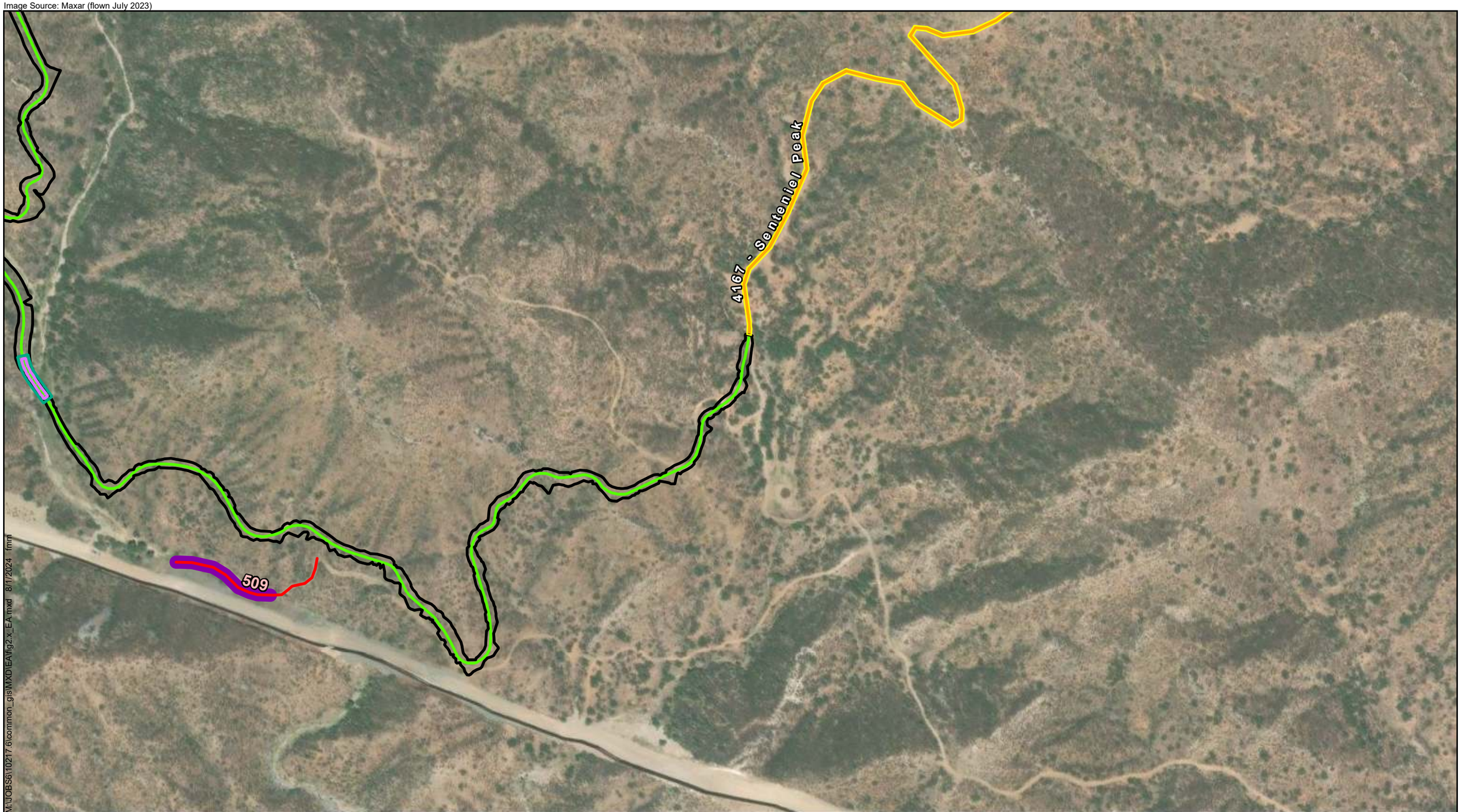
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
USFS Alignment Disturbance Area

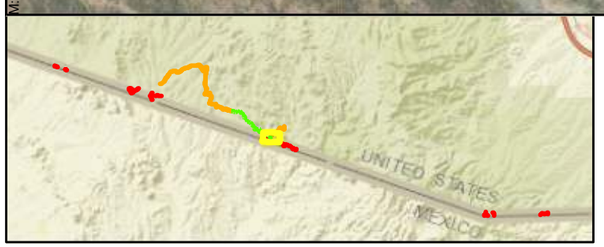
Low-Water Crossing
Permanent Impacts
Temporary Impacts

0 Feet 300

FIGURE 2.12
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)





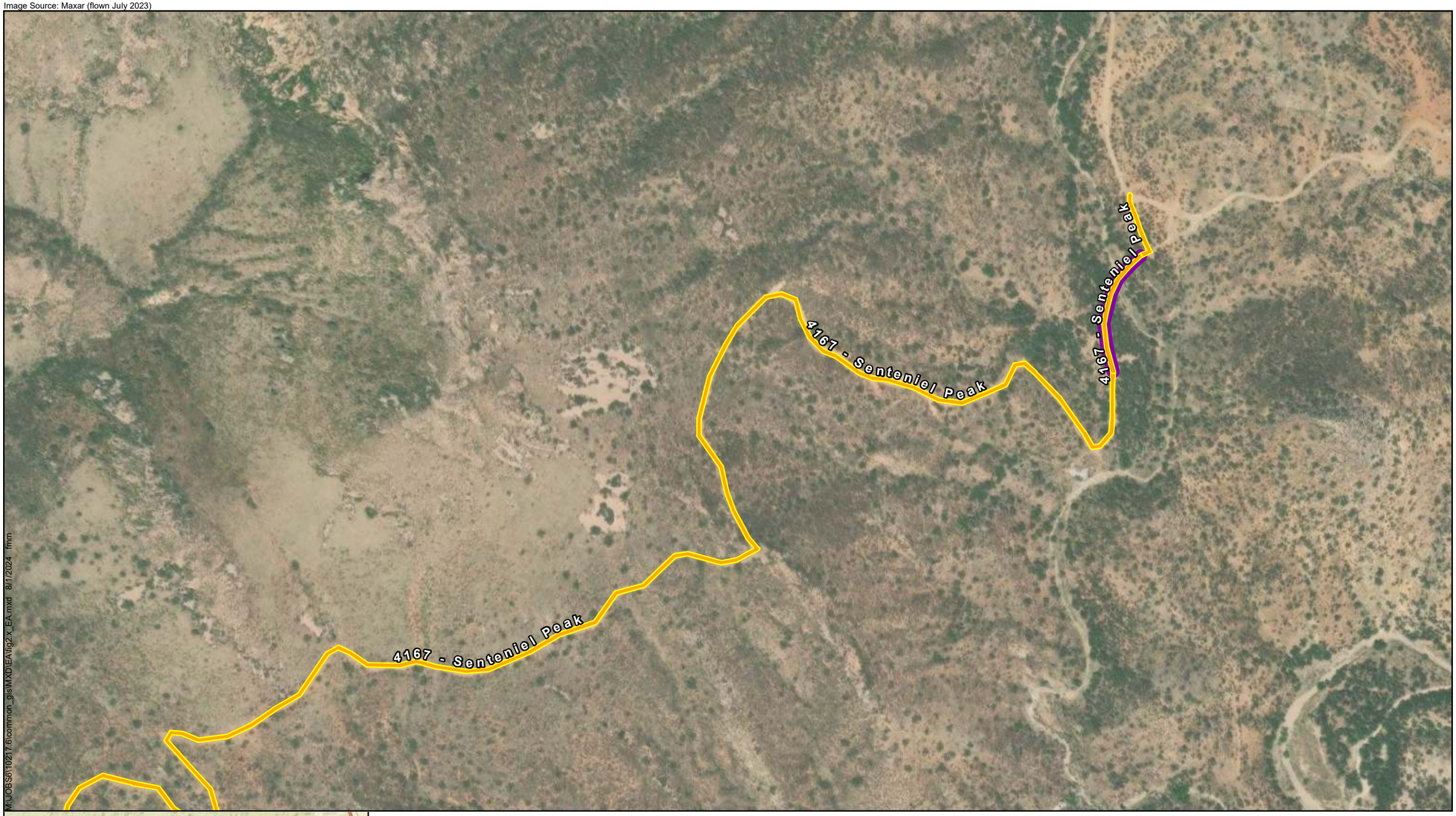
- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- Avoidance Areas
- 14-foot Road Width Disturbance Area
- USFS Alignment Disturbance Area

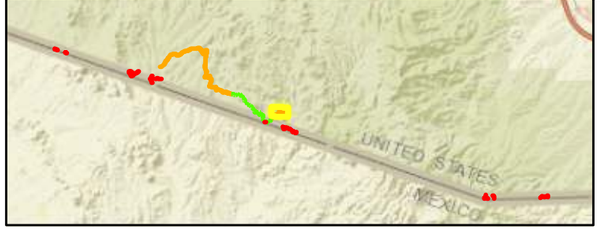
Low-Water Crossing
- Permanent Impacts
- Temporary Impacts

0 Feet 300

FIGURE 2.13
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)





Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas
14-foot Road Width Disturbance Area

0 Feet 300

FIGURE 2.14
Proposed Holden Canyon Connector Road Project Area Detail

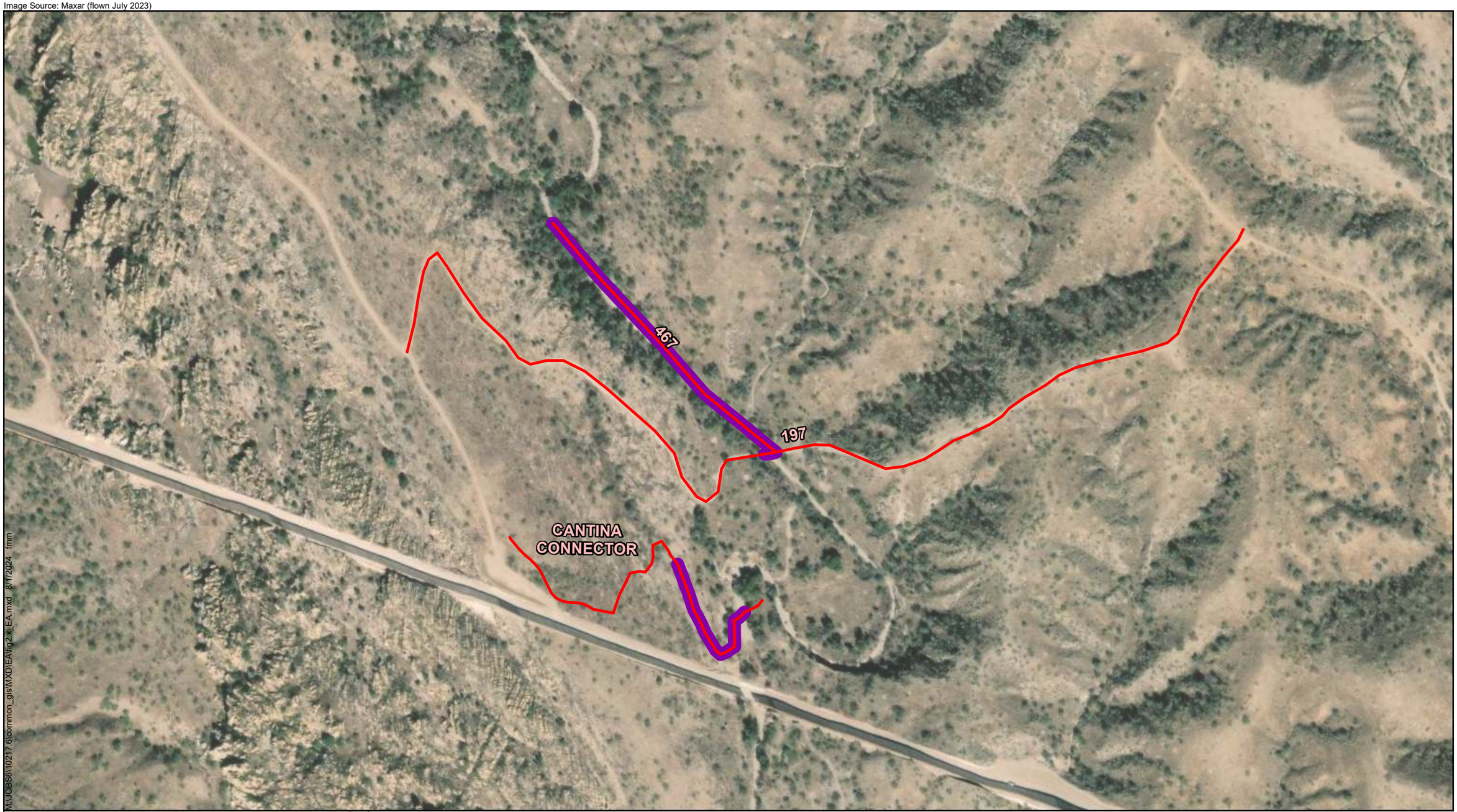
Image Source: Maxar (flown July 2023)

Existing Road Segments
New Road Segment
Proposed Decommissioned Roads

0 Feet 300

FIGURE 2.15
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas

0 Feet 300

FIGURE 2.16
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)

Existing Road Segments
New Road Segment
Proposed Decommissioned Roads

0 Feet 300

FIGURE 2.17
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)

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505

505

438

UNITED STATES

MEXICO

Existing Road Segments

New Road Segment

Proposed Decommissioned Roads

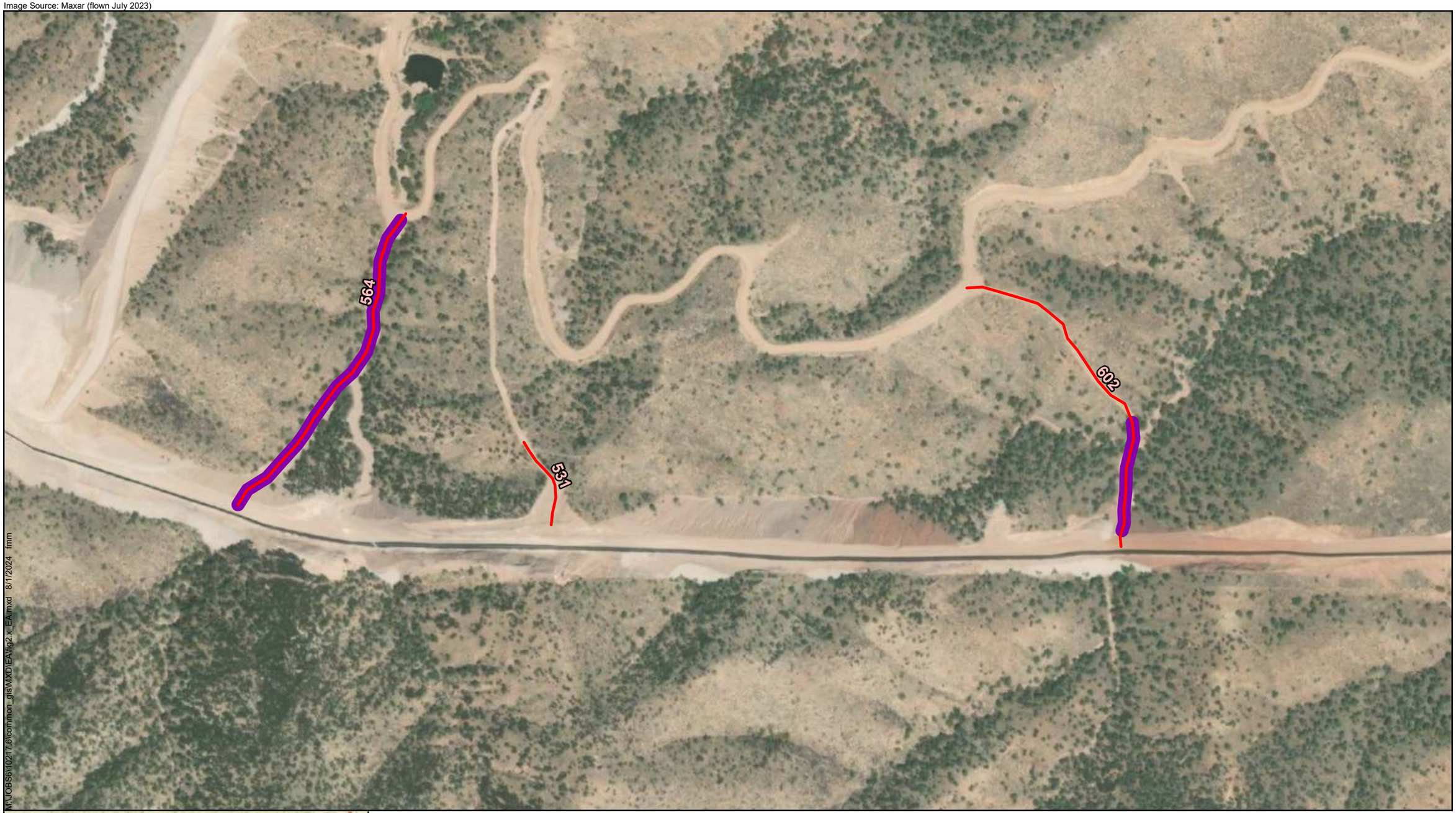
Avoidance Areas

0 Feet 300

FIGURE 2.18

Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)



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Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas

0 Feet 300

FIGURE 2.19
Proposed Holden Canyon Connector Road Project Area Detail

Image Source: Maxar (flown July 2023)

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Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas

0 Feet 300

FIGURE 2.20
Proposed Holden Canyon Connector Road Project Area Detail

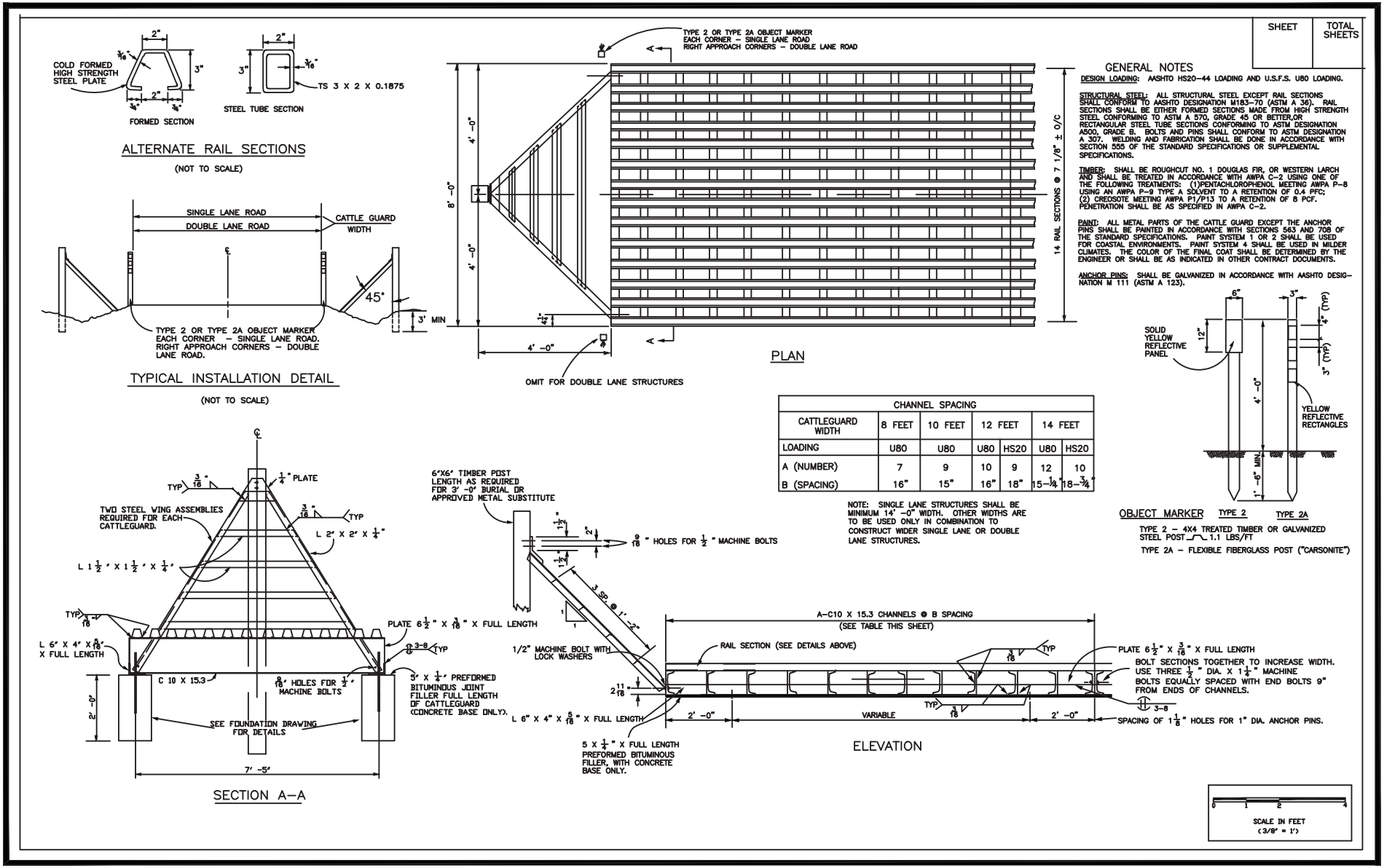


FIGURE 2.21
Cattle Guard Detail

Map Source: Keller and Sherar 2003 (referenced in EA doc)

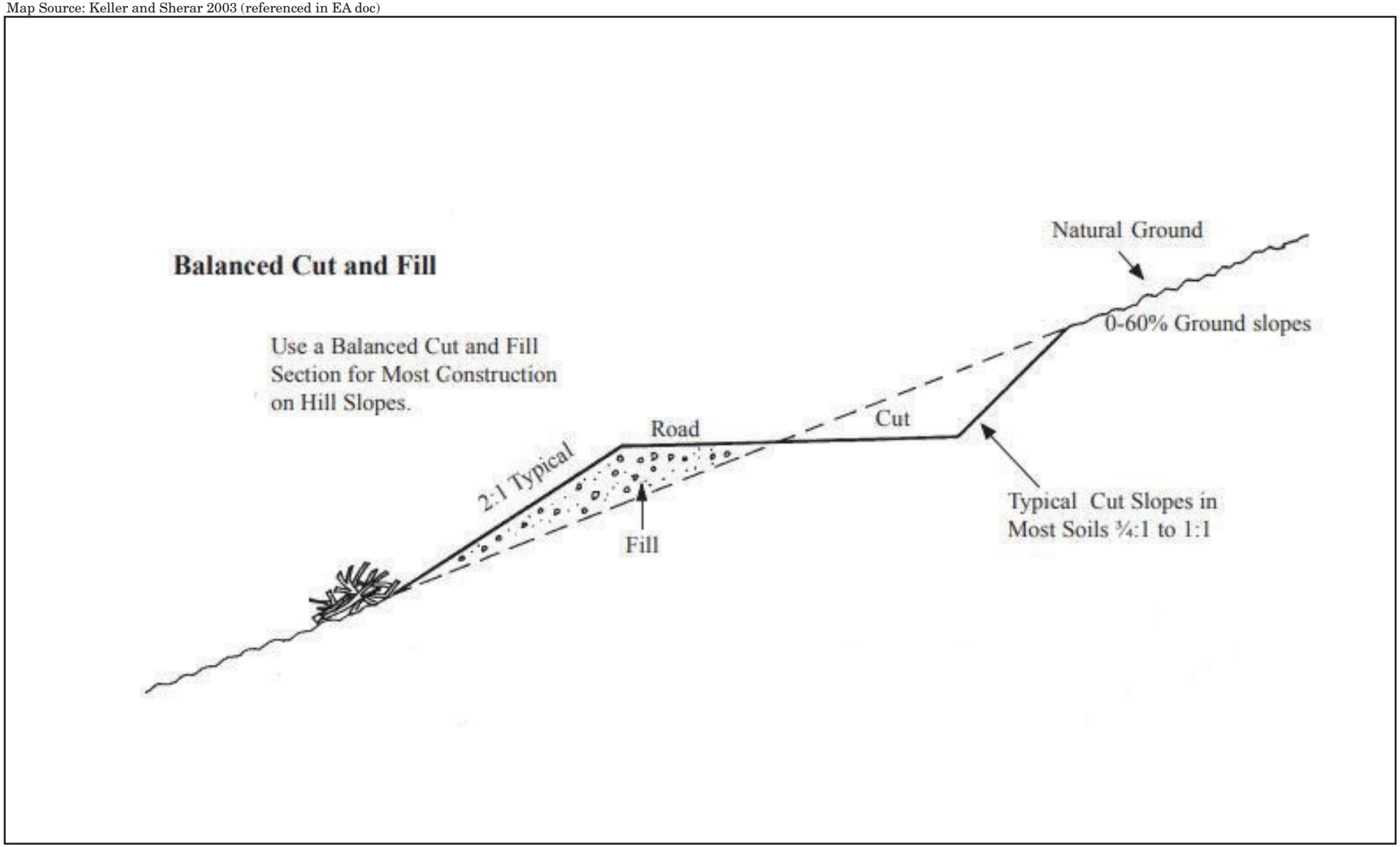


FIGURE 2.22
Typical Cut and Fill Slopes

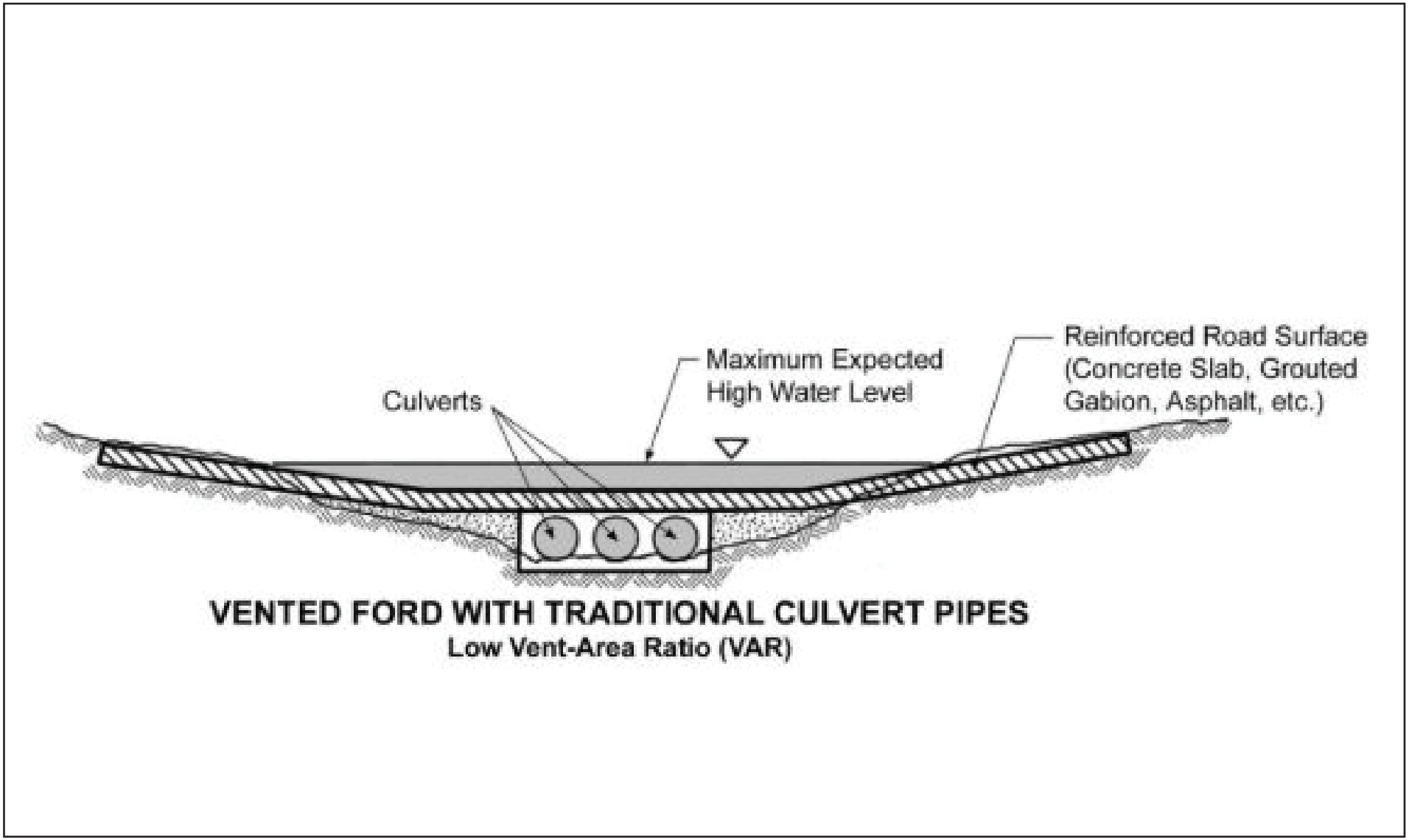
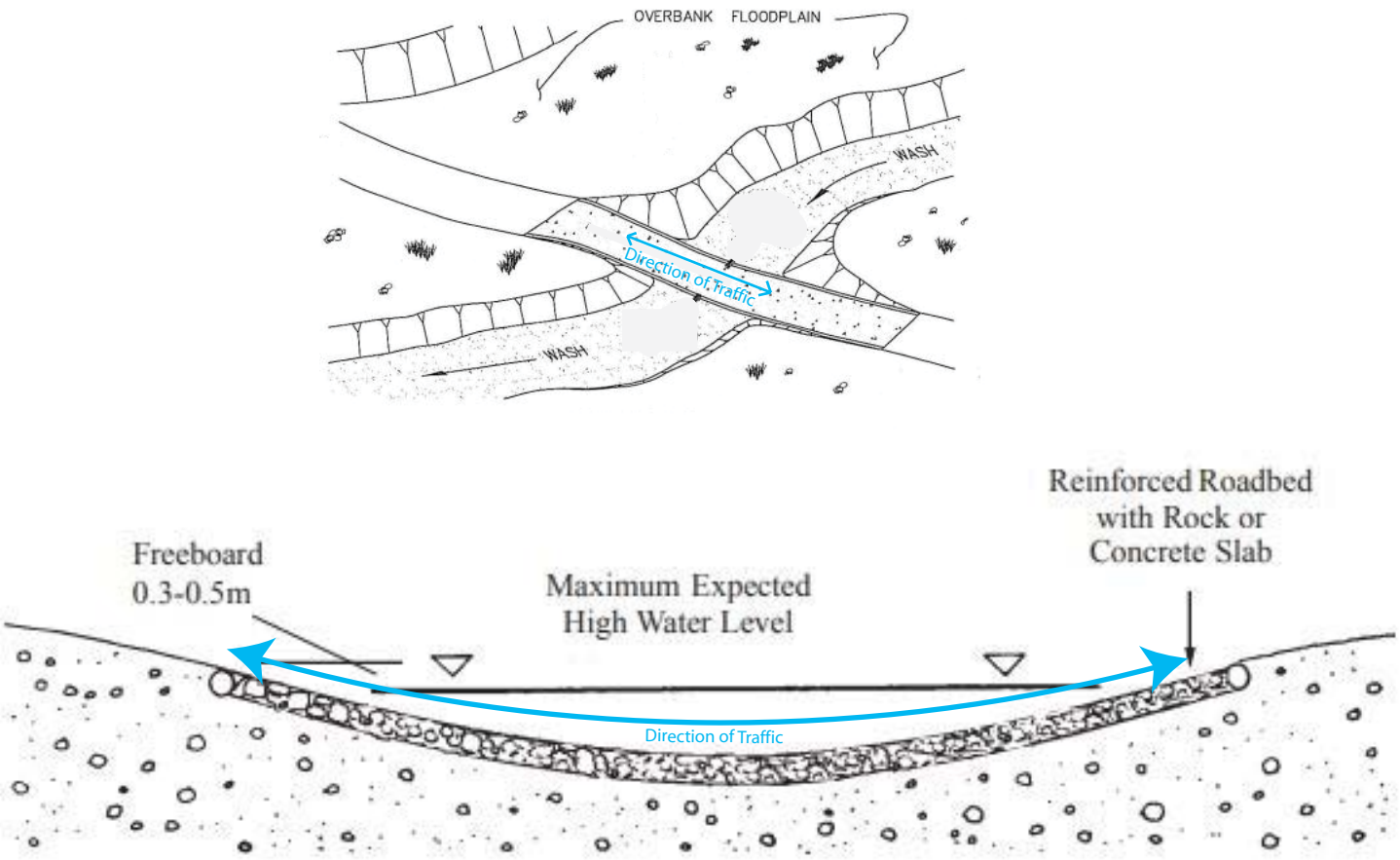


FIGURE 2.23
Example Vented Ford with Culvert Pipes



Simple Low-Water Crossing with Reinforced Roadbed of Rock or Concrete

FIGURE 2.24
Reinforced Low-Water Crossing

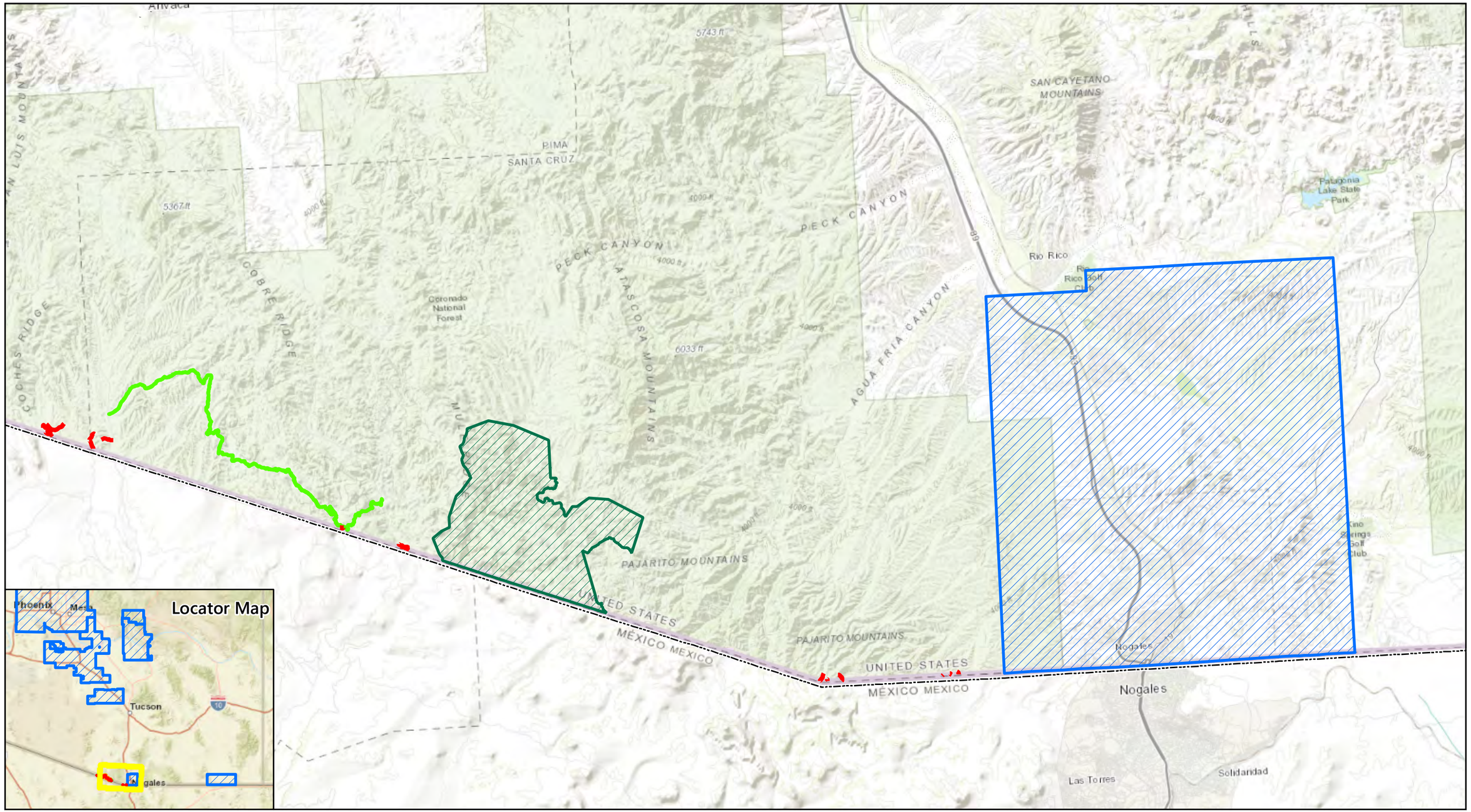


FIGURE 3.1
Nogales Air Quality PM_{10} Nonattainment Area, Santa Cruz County, Arizona

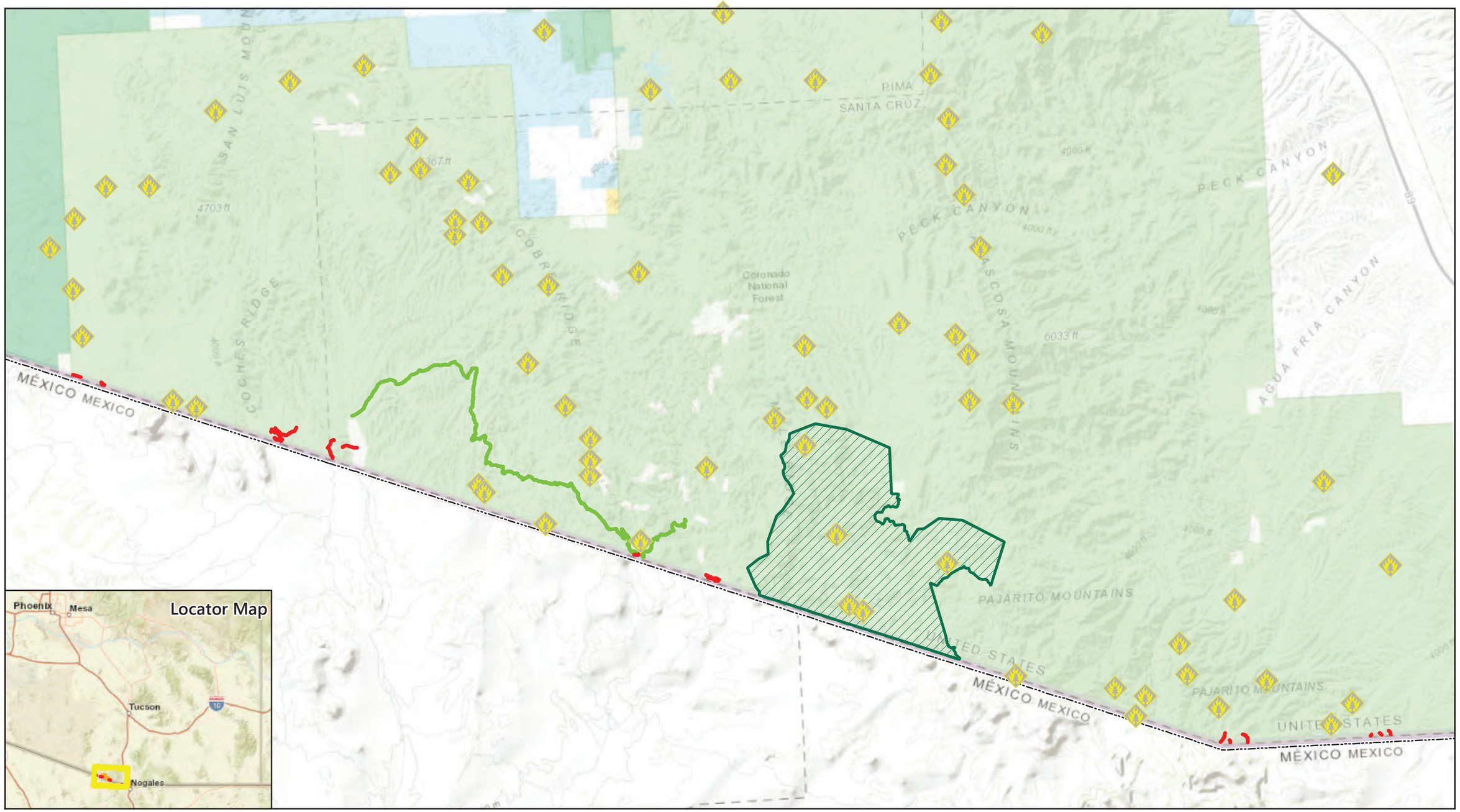


FIGURE 3.2
Wildfire Incident Locations in the Analysis Area

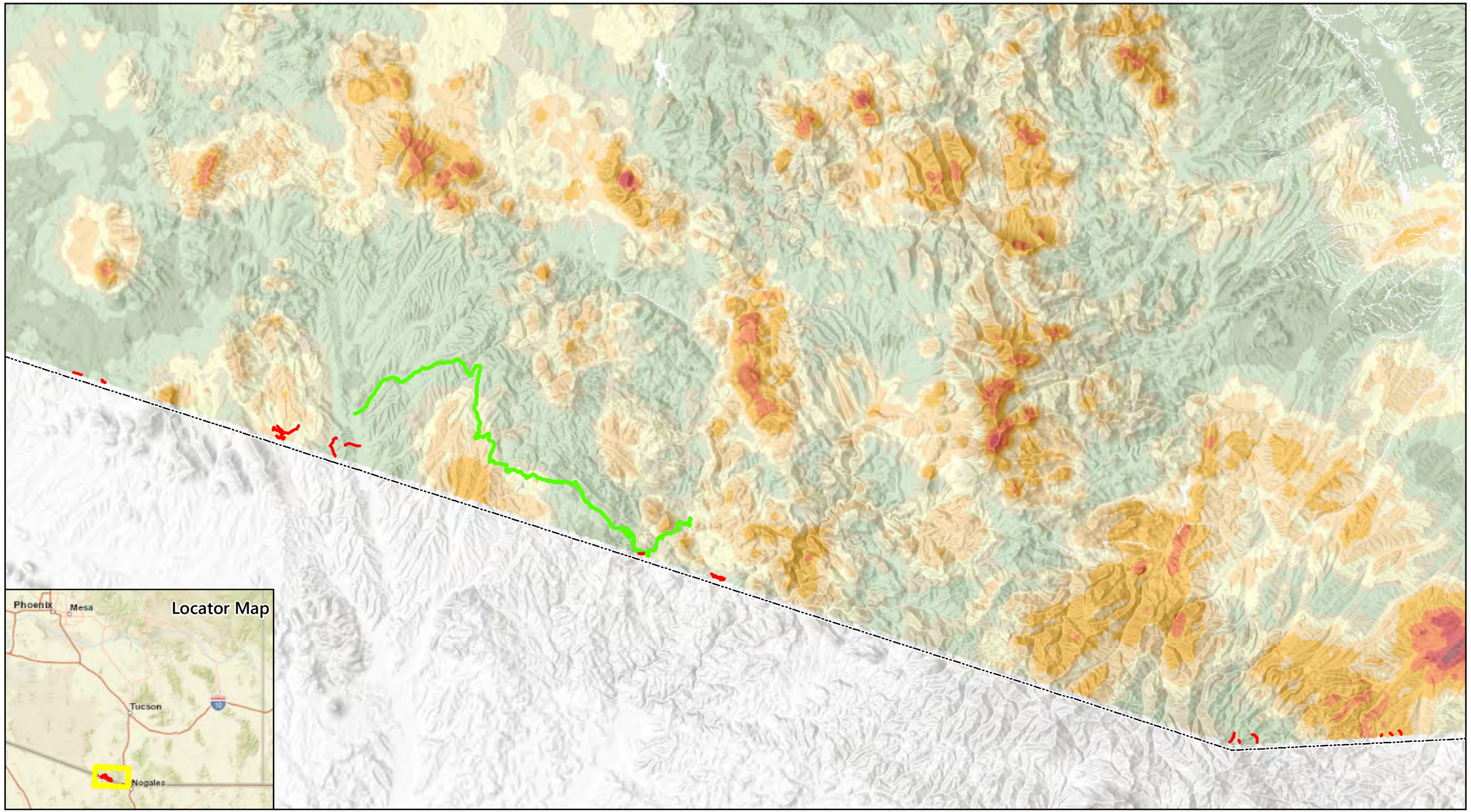


FIGURE 3.3
Wildfire Threat Index in the Analysis Area

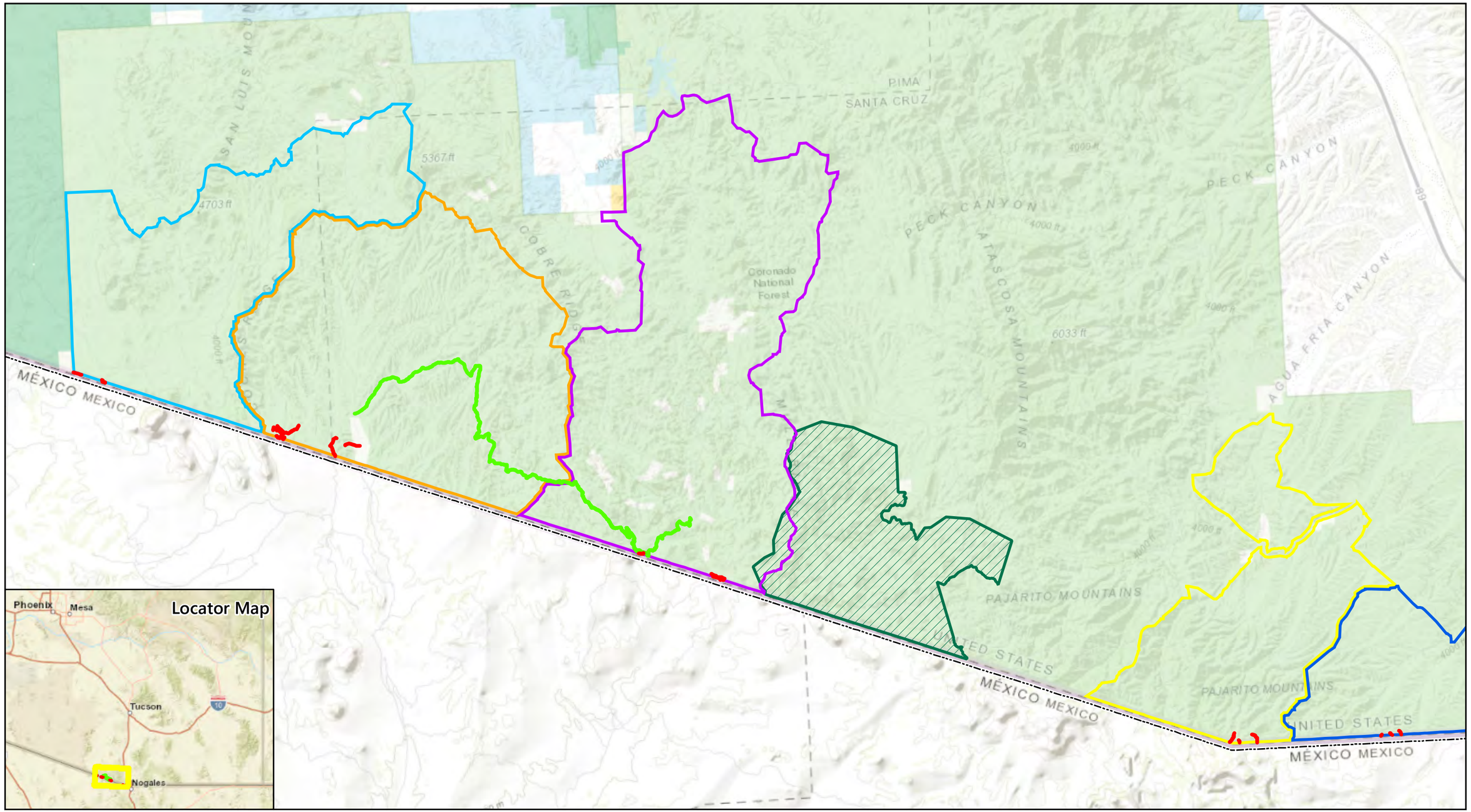


FIGURE 3.4
Grazing Allotments in the Analysis Area

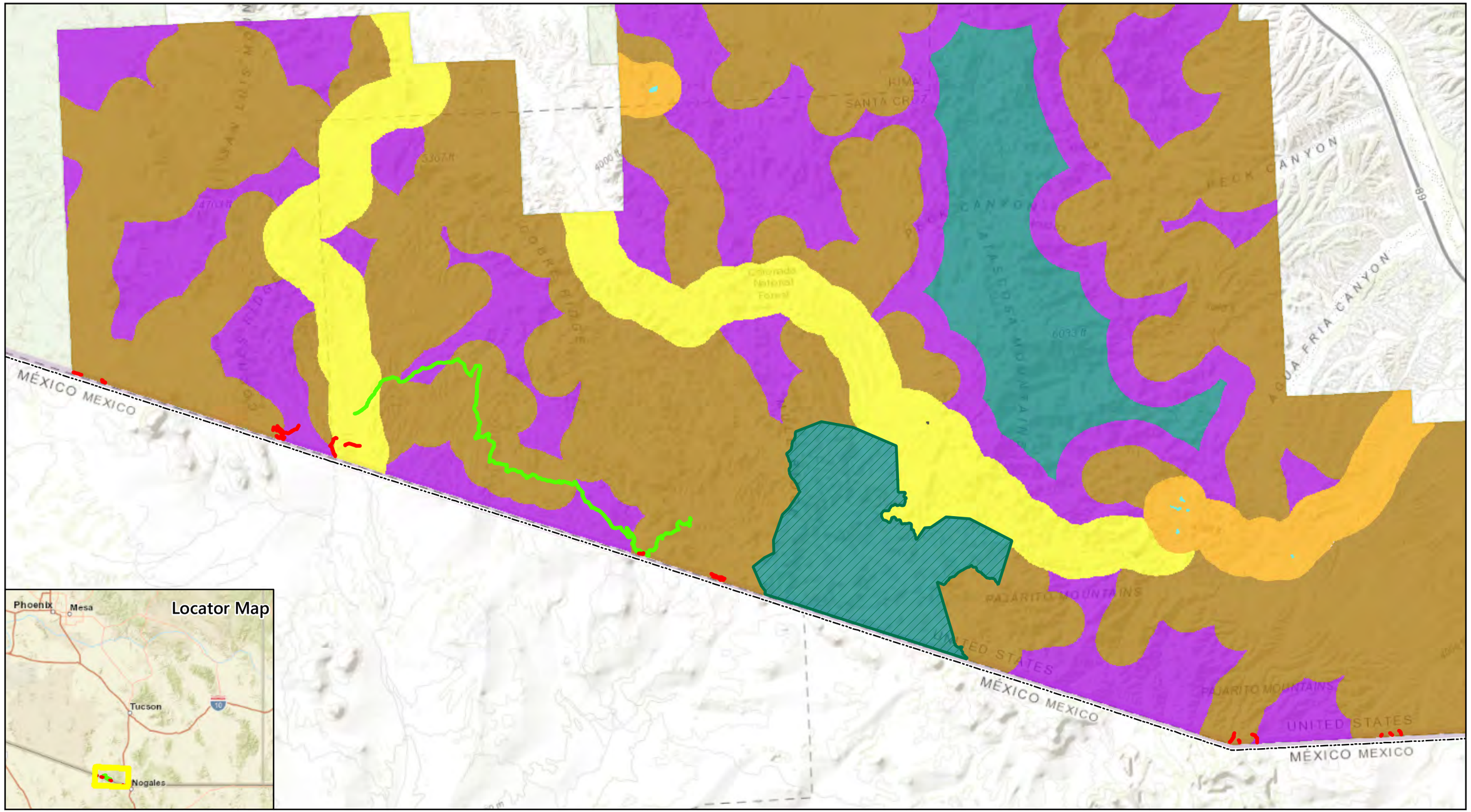
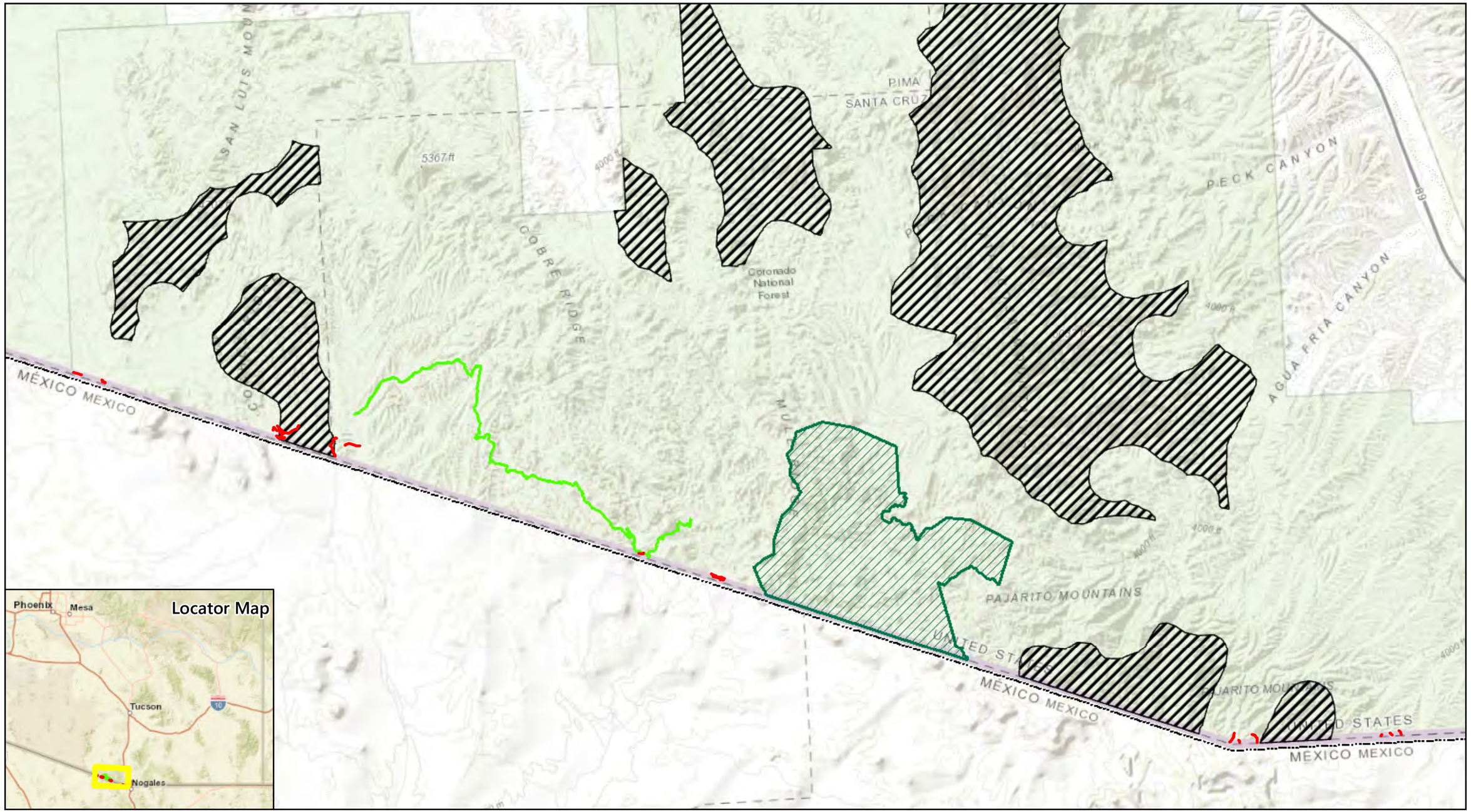


FIGURE 3.5
Recreation Opportunity Spectrum Classes in the Analysis Area



Proposed Holden Canyon Connector Road Project Area
Proposed Decommissioned Roads
US/Mexico International Border
Pajarita Wilderness Area
Inventoried Roadless Areas

FIGURE 3.6
Inventoried Roadless Areas within the Analysis Area

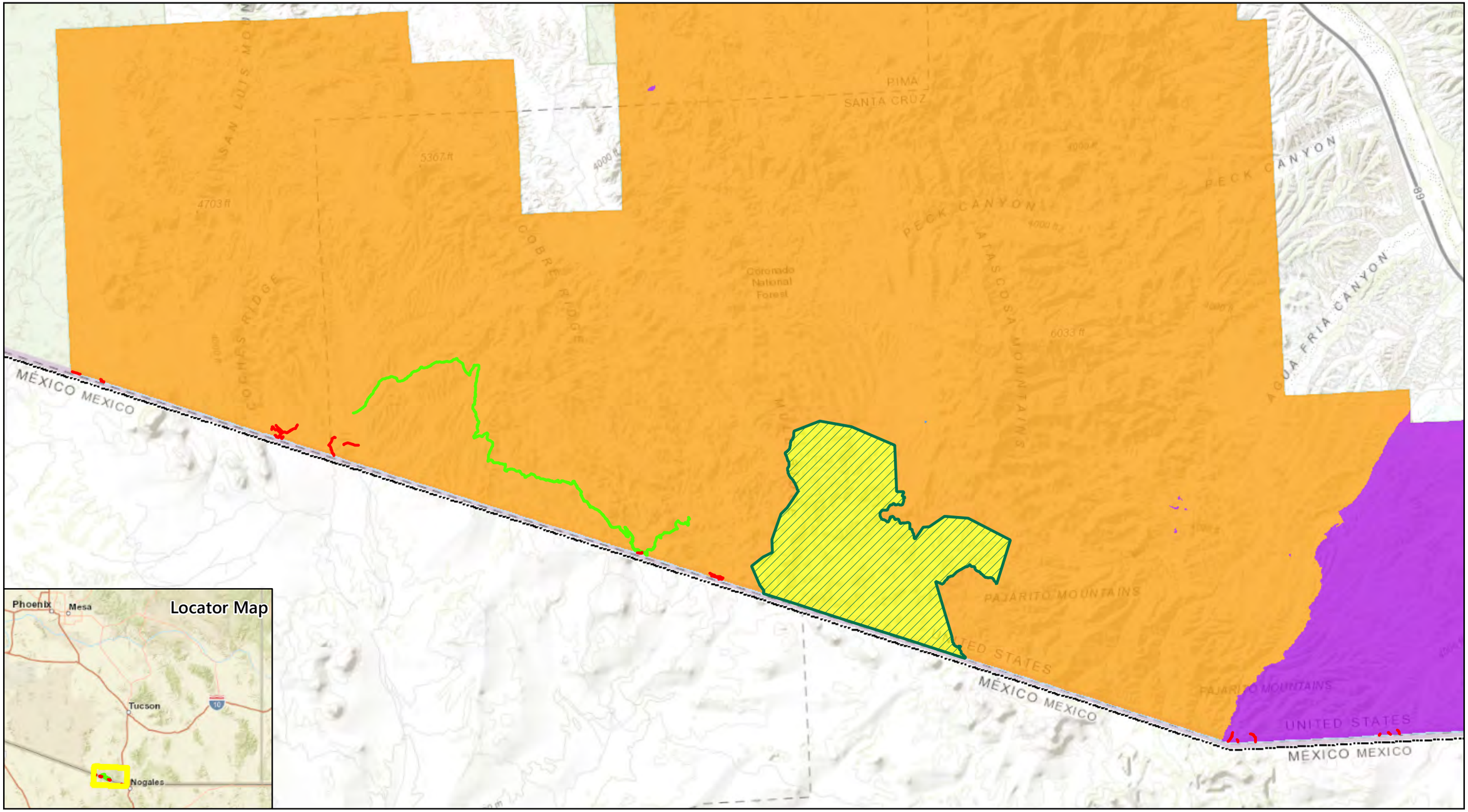


FIGURE 3.7
Scenic Integrity Objectives in the Analysis Area

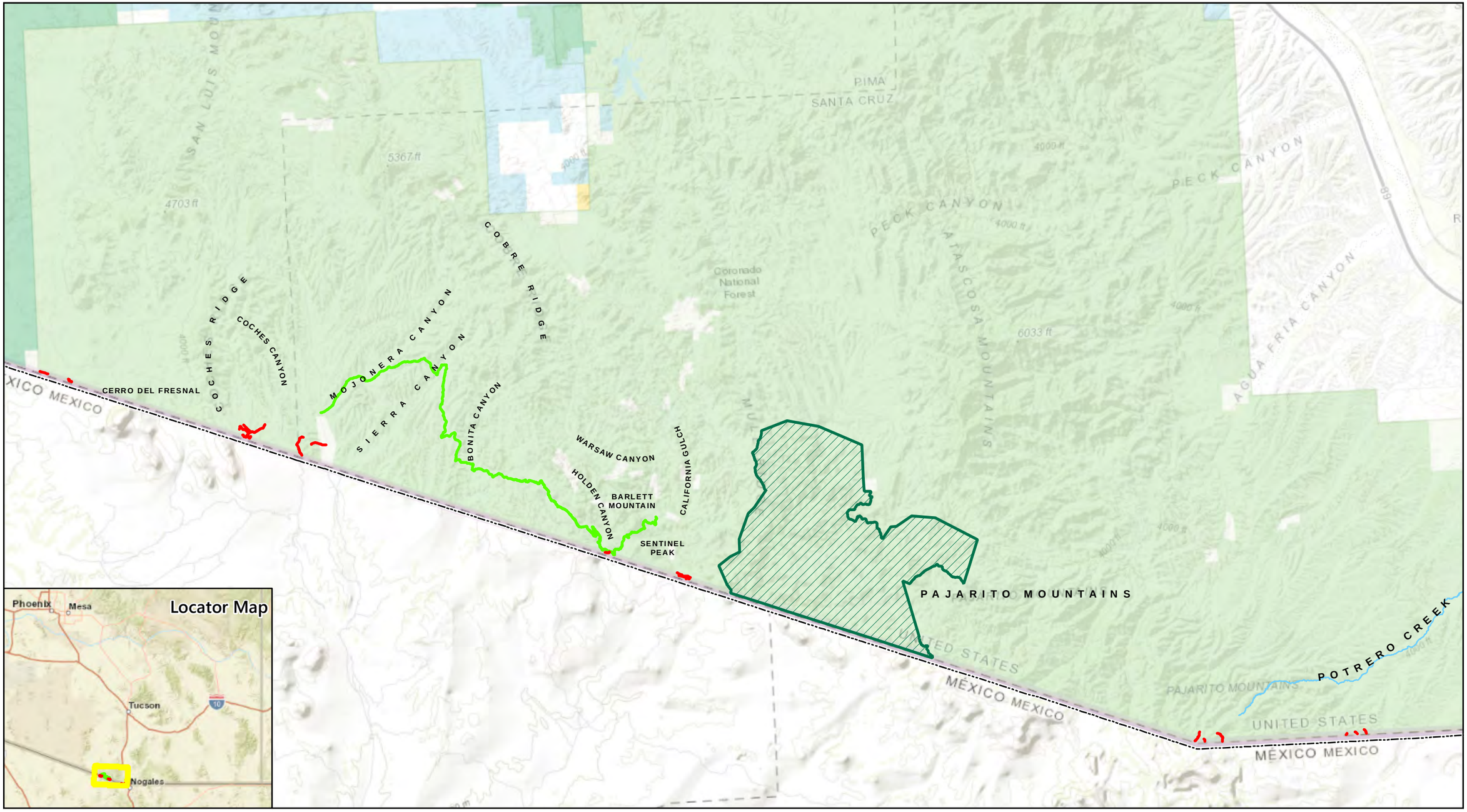


FIGURE 3.8
Major Topographic Features in the Analysis Area

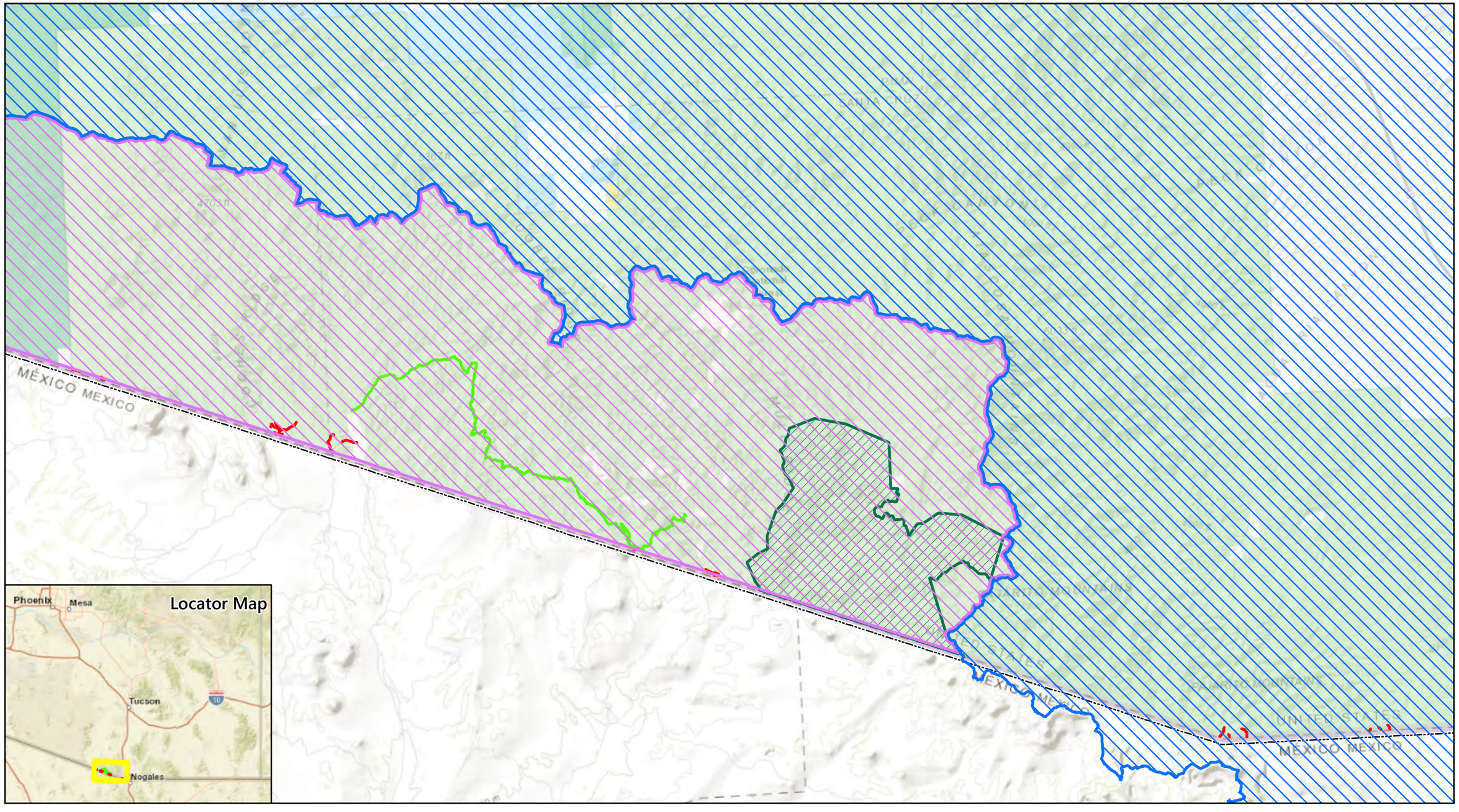


FIGURE 3.9
Watersheds within the Analysis Area

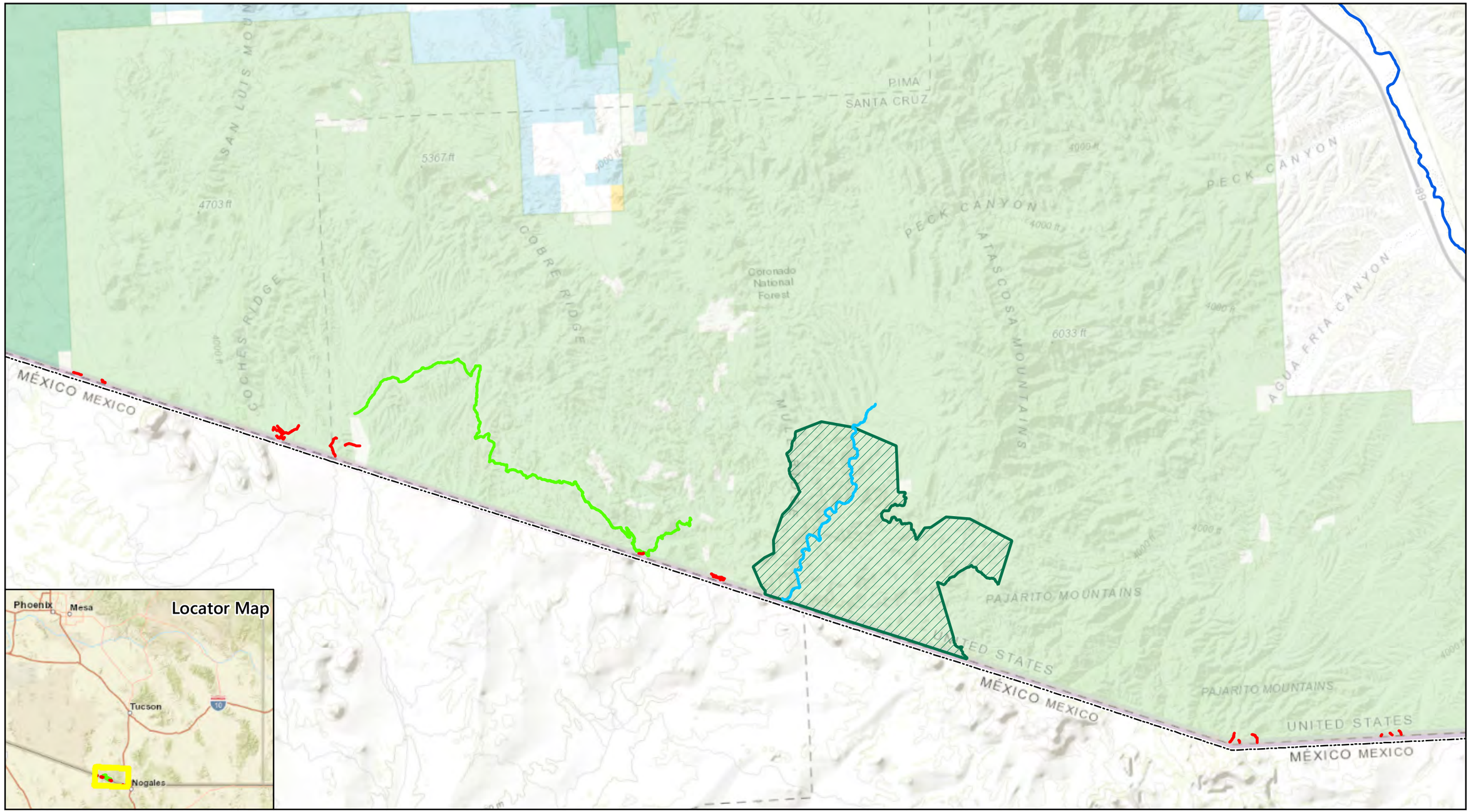
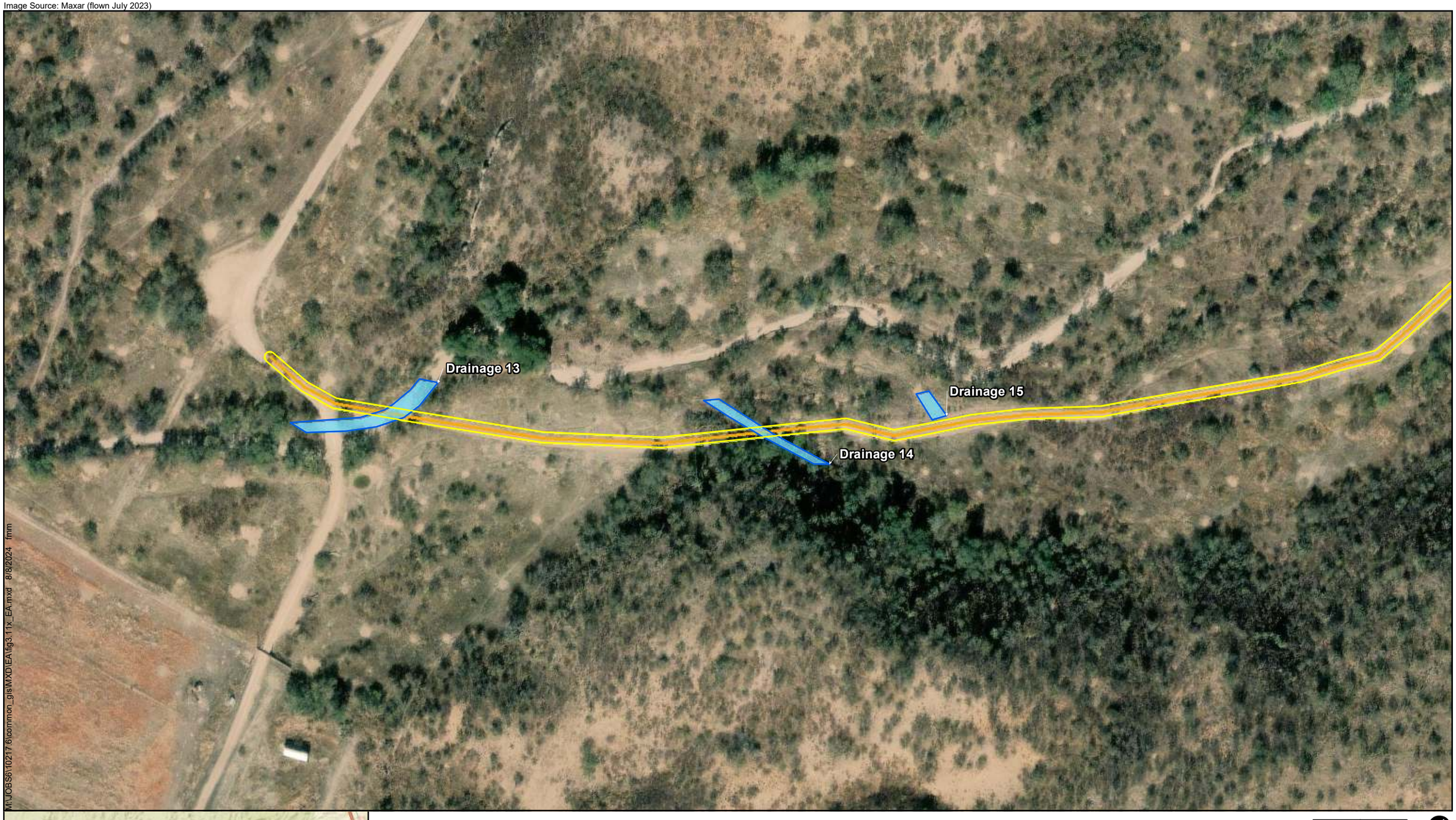
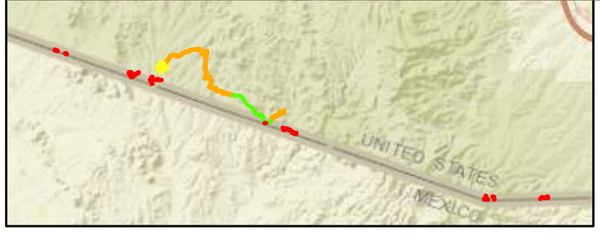


FIGURE 3.10
Major Rivers and Streams in the Analysis Area and Vicinity

Image Source: Maxar (flown July 2023)





Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.11
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

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Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.12
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

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- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- 14-foot Road Width Disturbance Area
- Non-Wetland Drainage Features

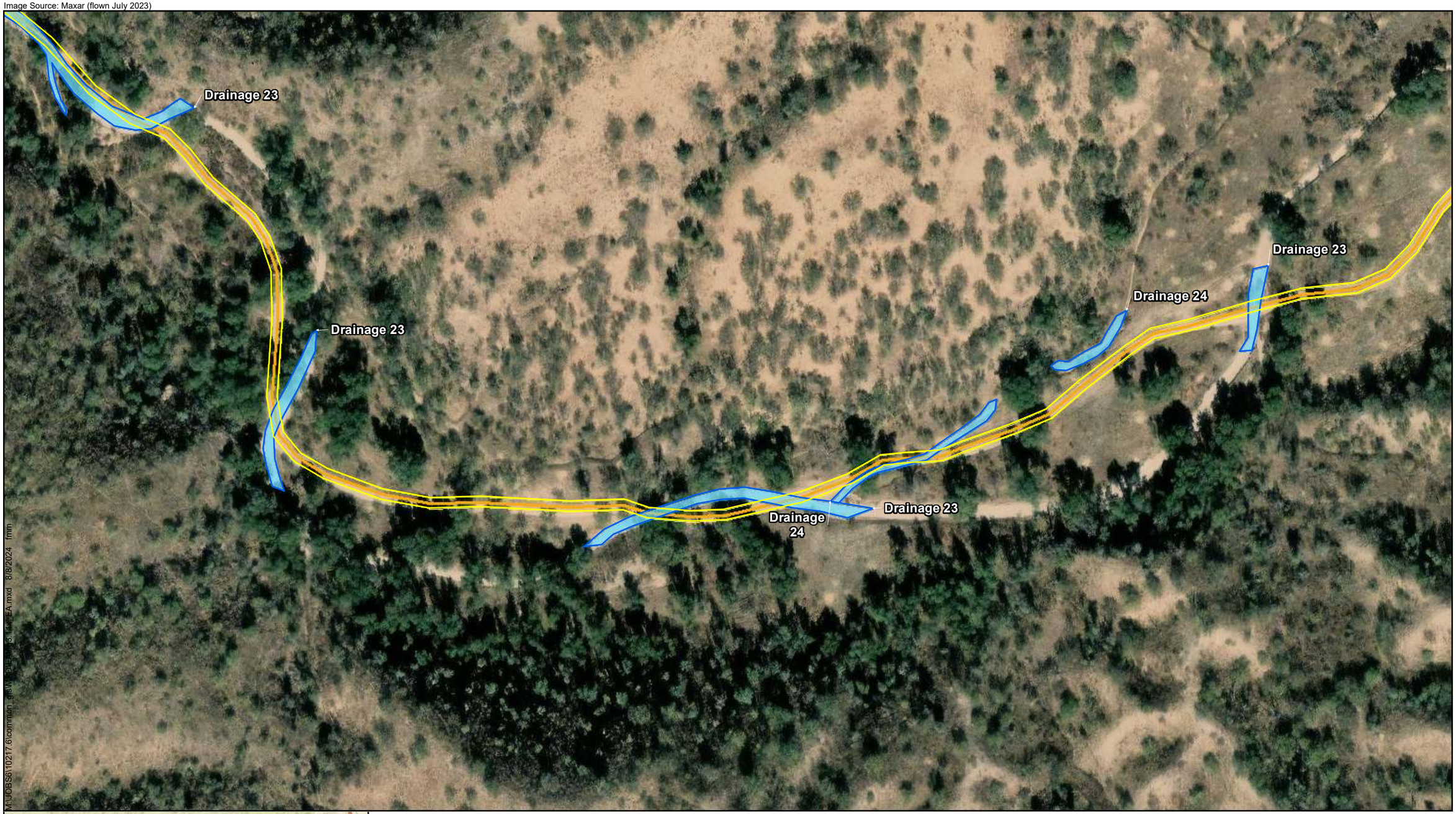
0 Feet 125

FIGURE 3.13
Non-Wetland Drainage Features within the Analysis Area

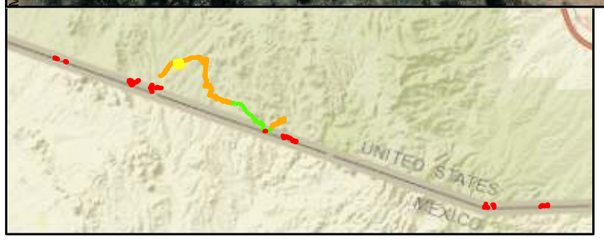
Image Source: Maxar (flown July 2023)

FIGURE 3.14
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



M:\JOBS6\10217.6\common_gis\MXD\EA_Figs\3.15_NWD_EA.mxd 8/8/2024 fmm

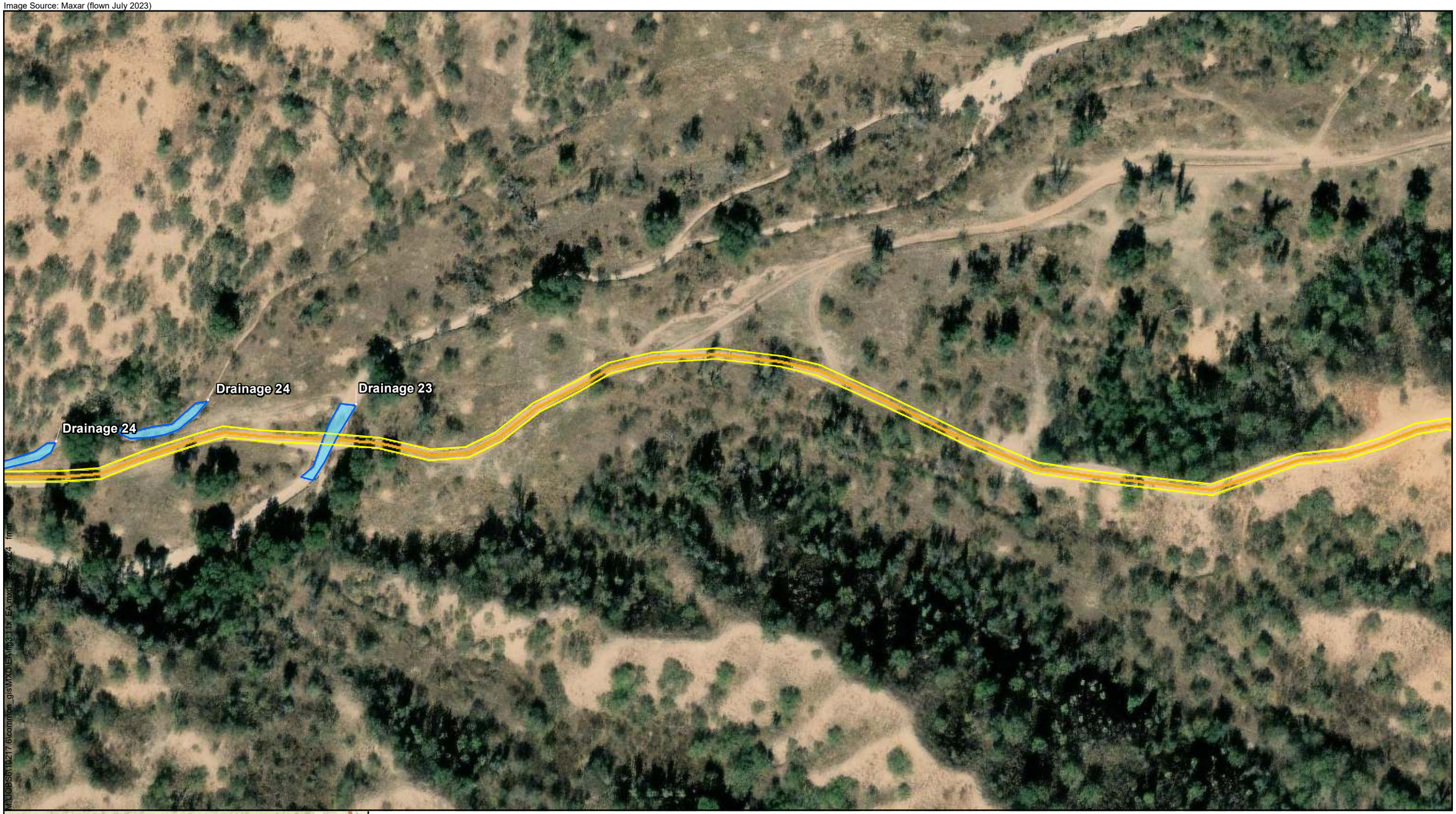


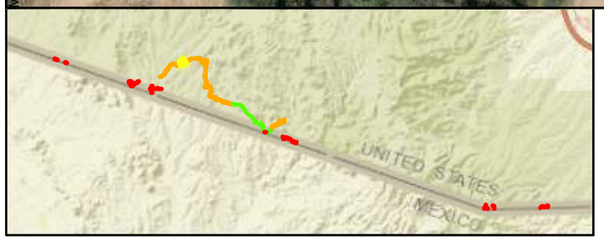
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.15
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



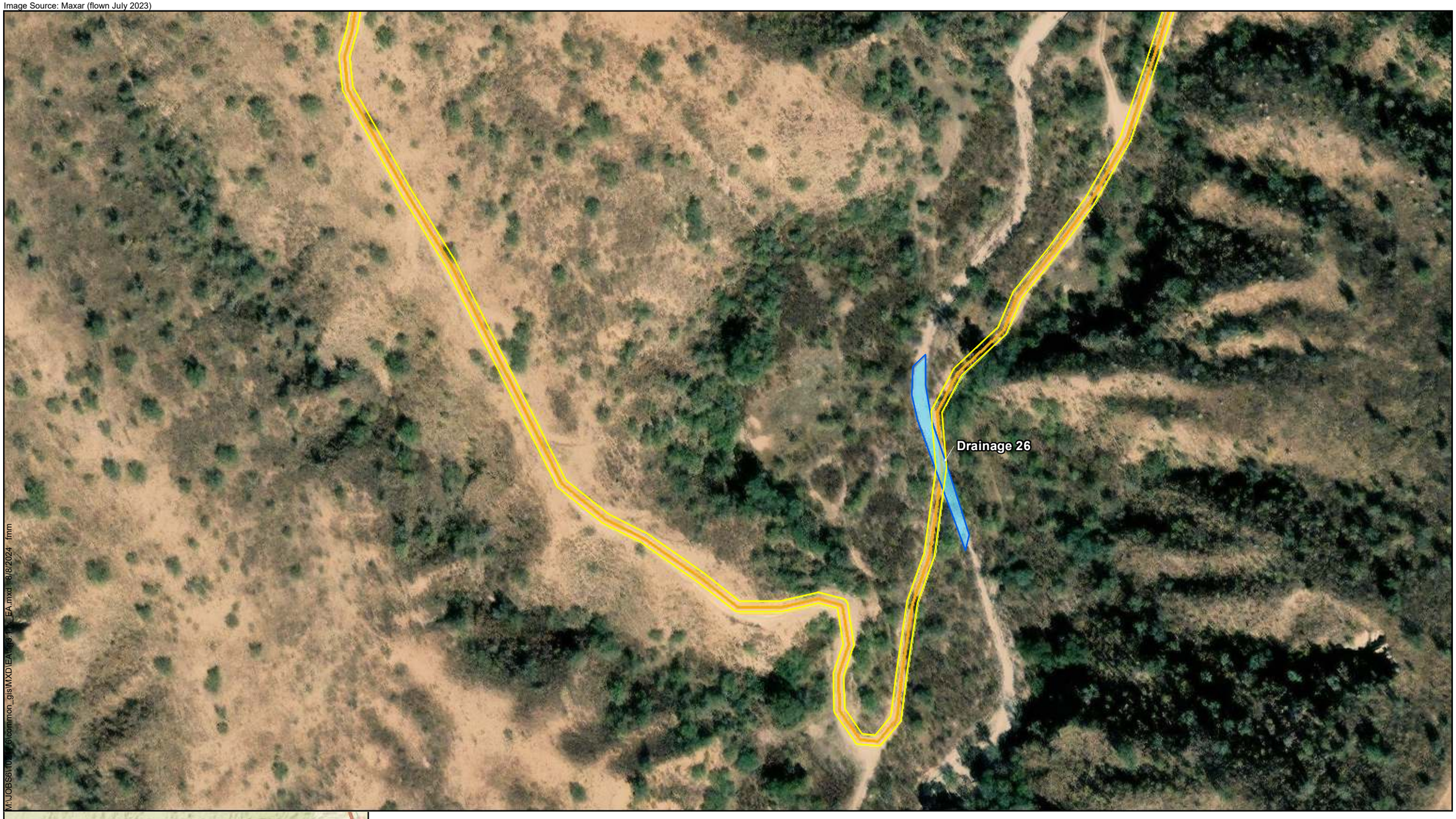


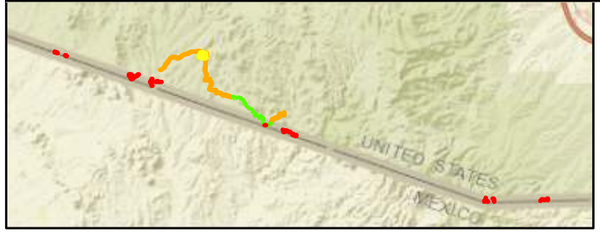
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.16
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)





Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.17
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

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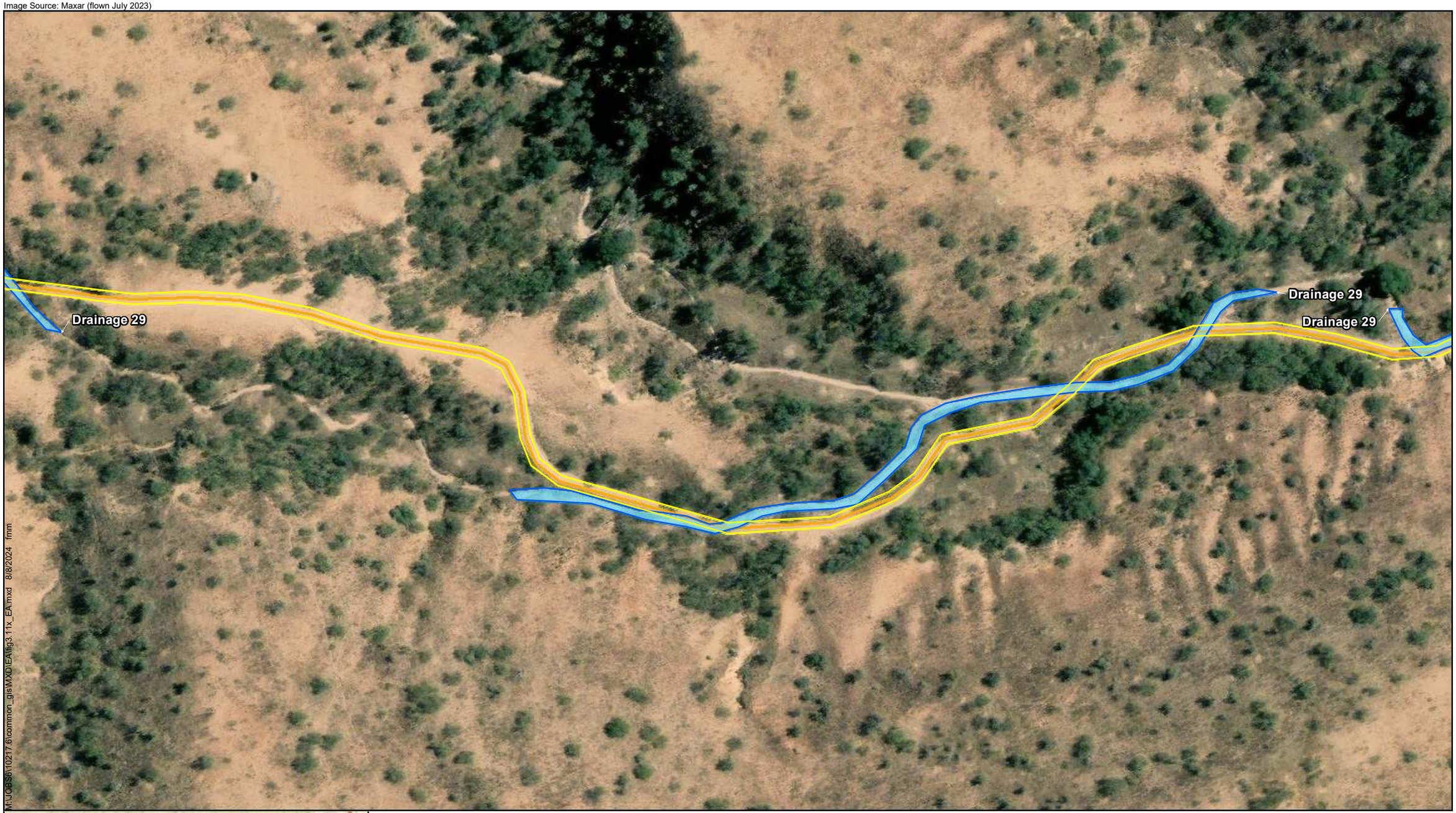
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

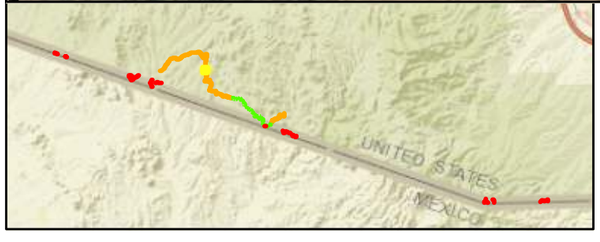
0 Feet 125

FIGURE 3.18
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



M:\JOBS6\10217.6\common_gis\MXD\EA\fig3.11x_EA.mxd 8/8/2024 fmm

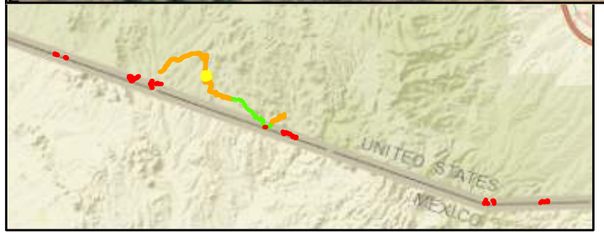


- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- 14-foot Road Width Disturbance Area
- Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.19
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.20
Non-Wetland Drainage Features within the Analysis Area

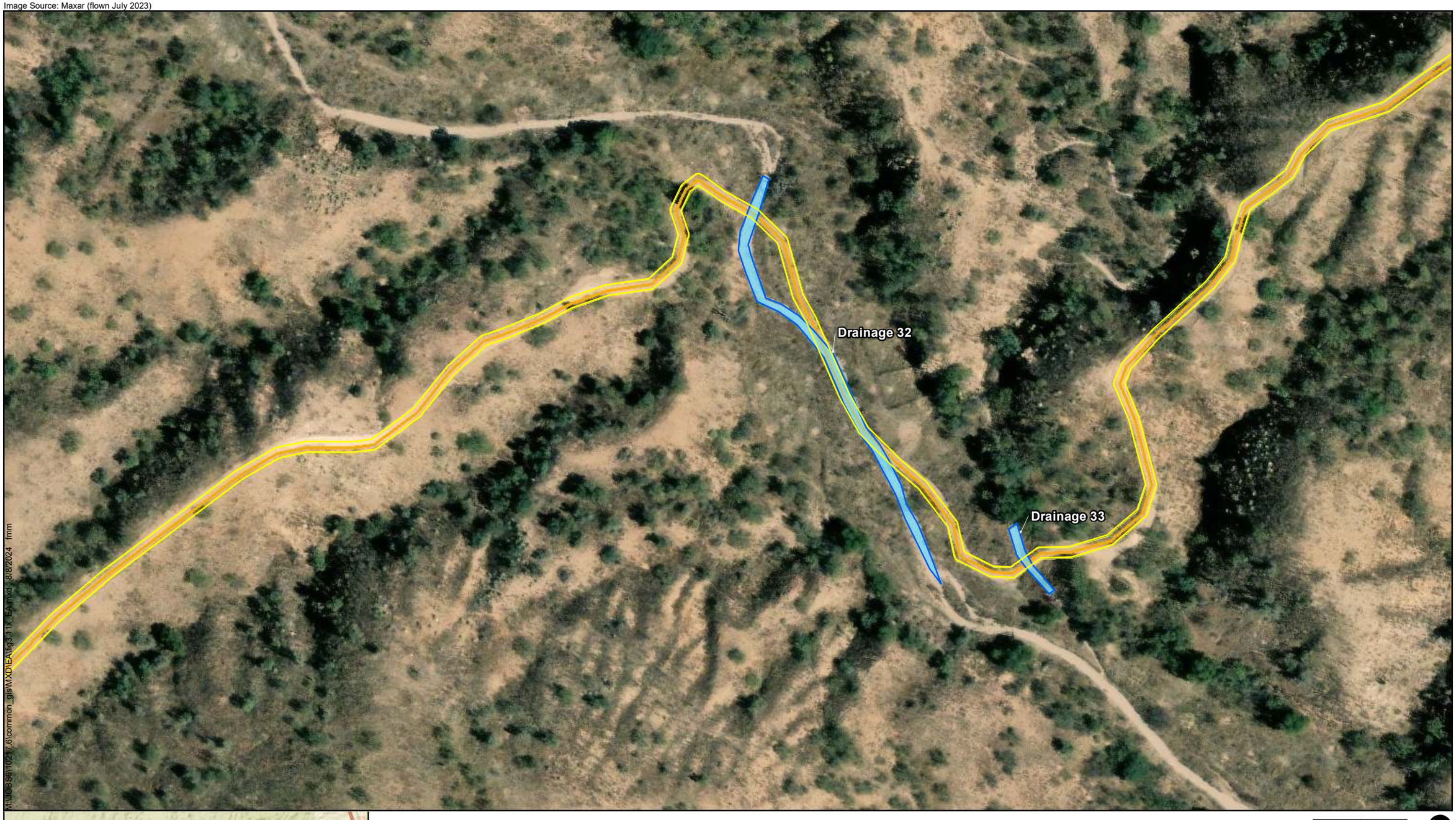
Image Source: Maxar (flown July 2023)

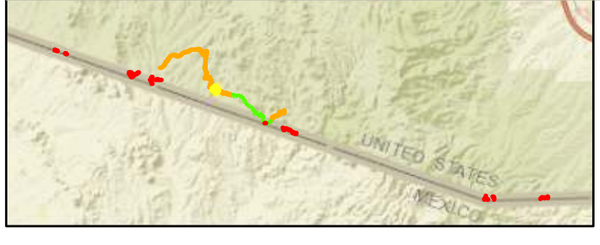
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.21
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



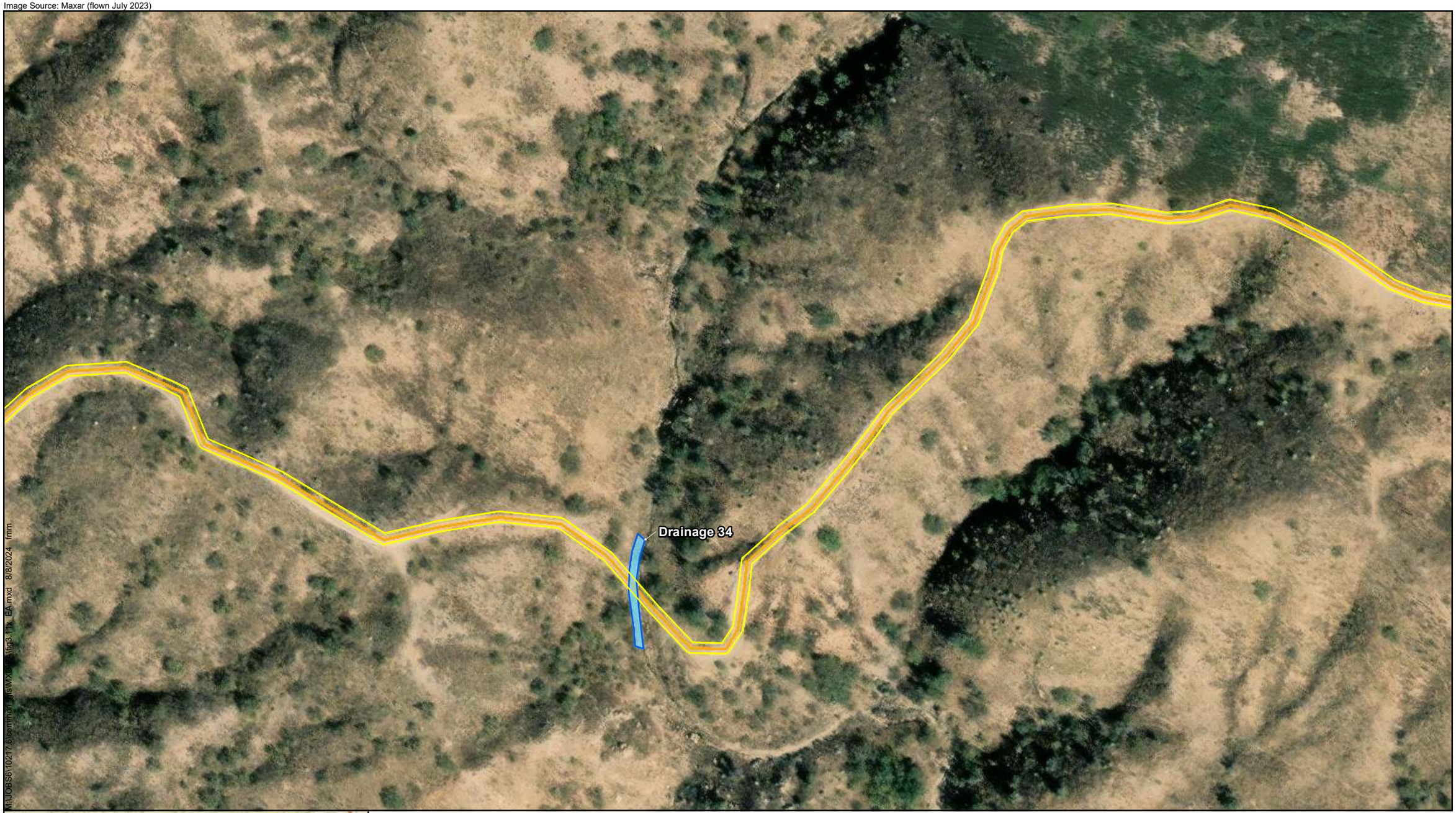


Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.22
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.23
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

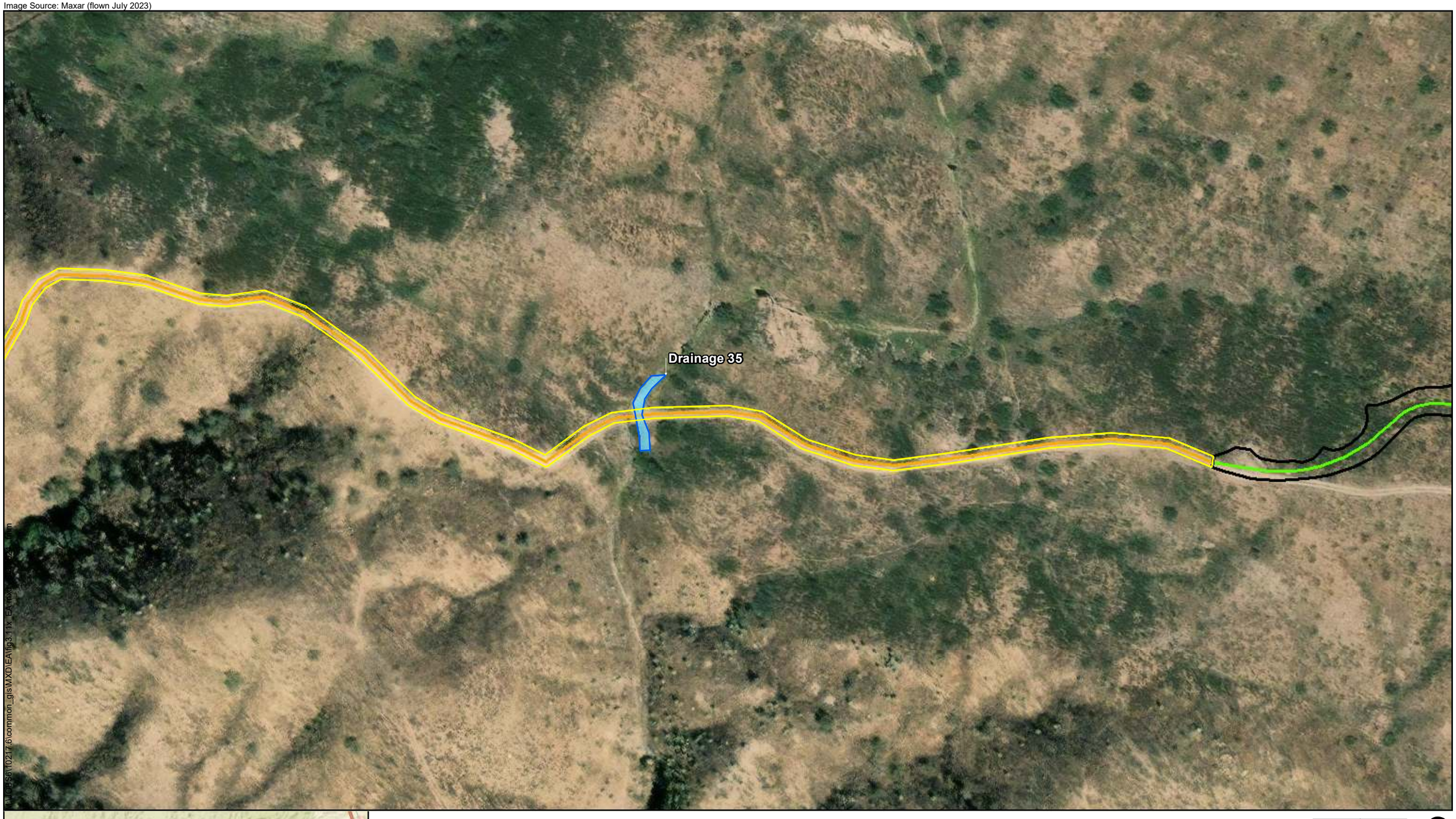


FIGURE 3.24
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

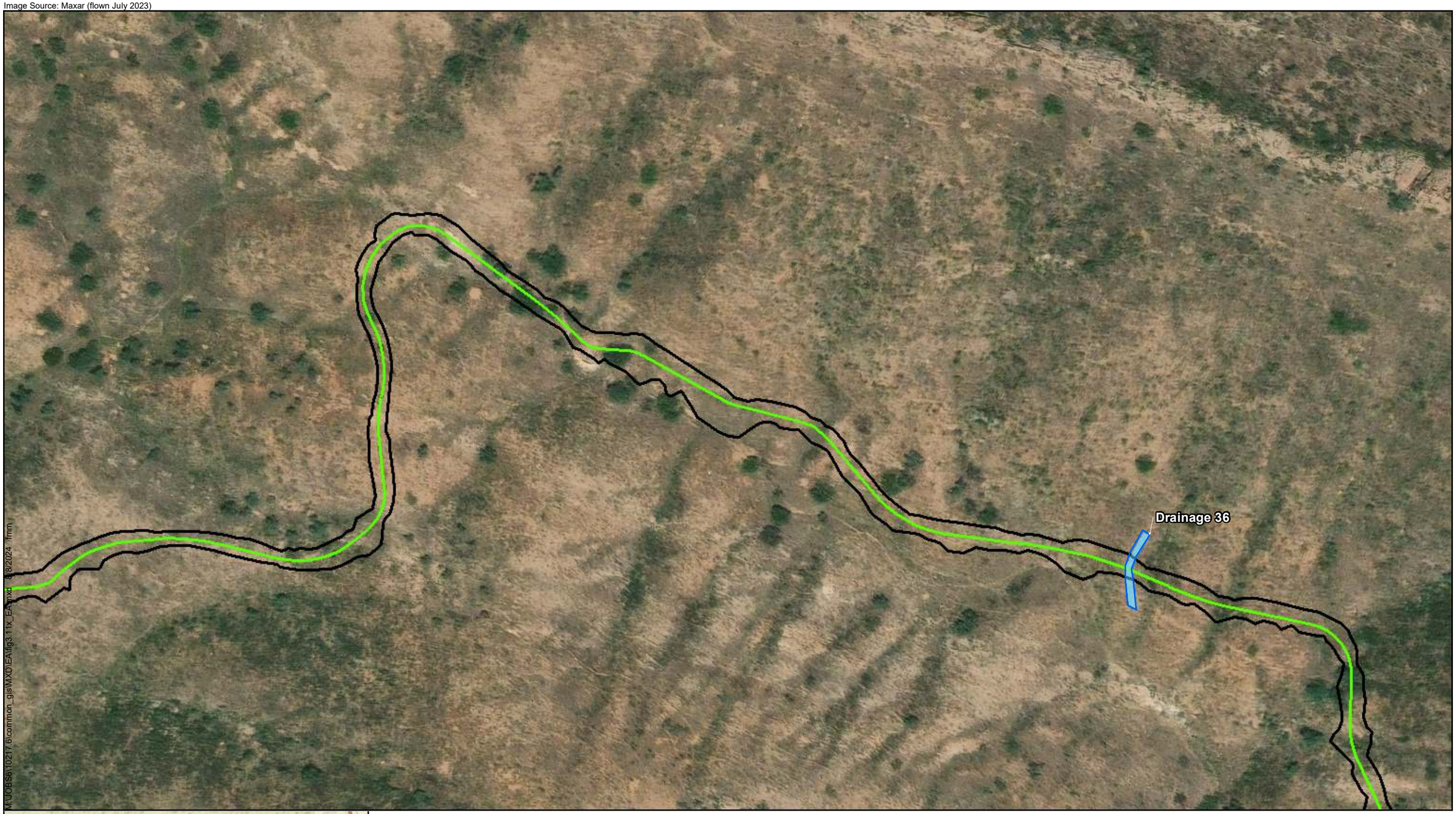
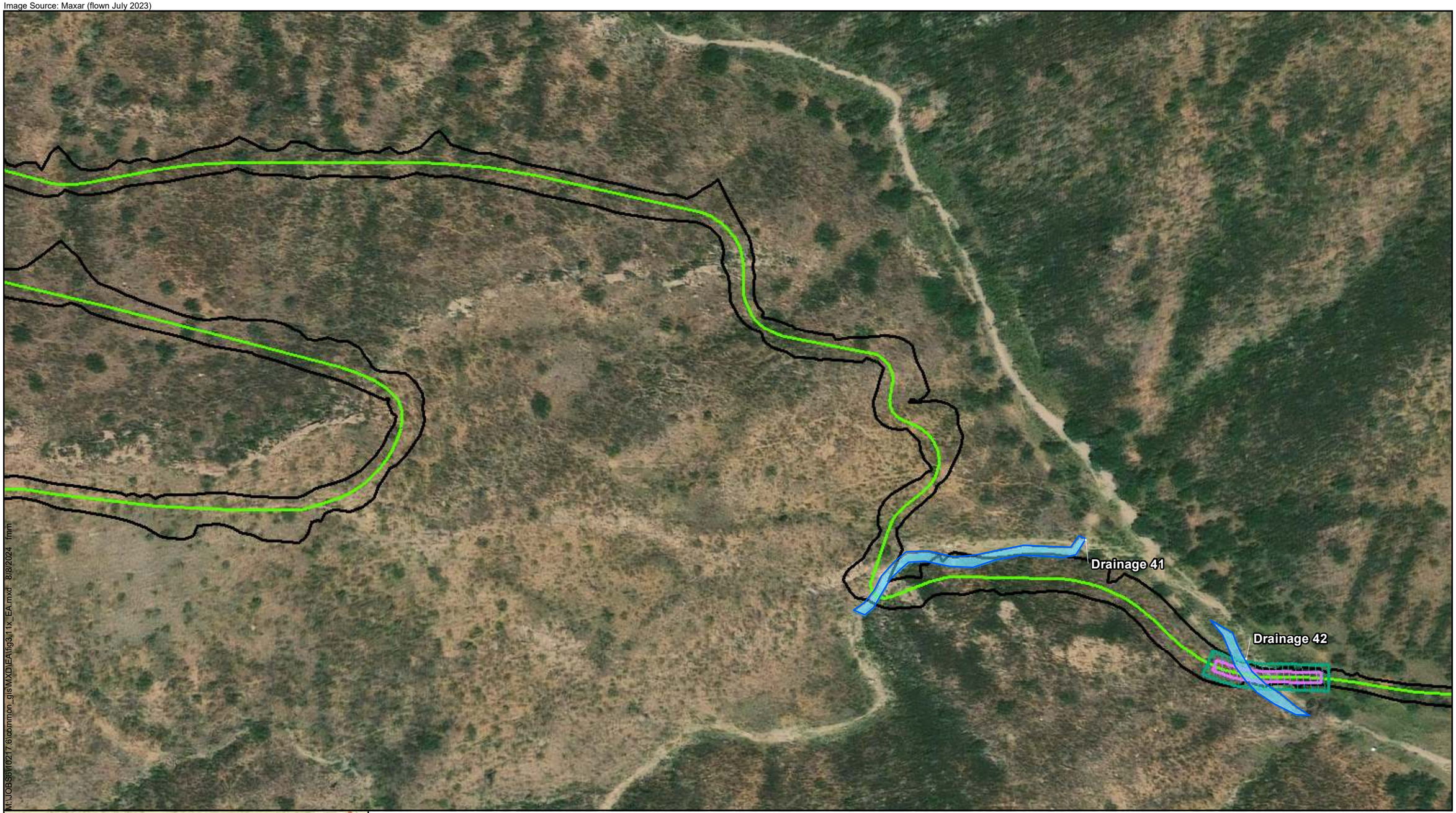


FIGURE 3.25
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



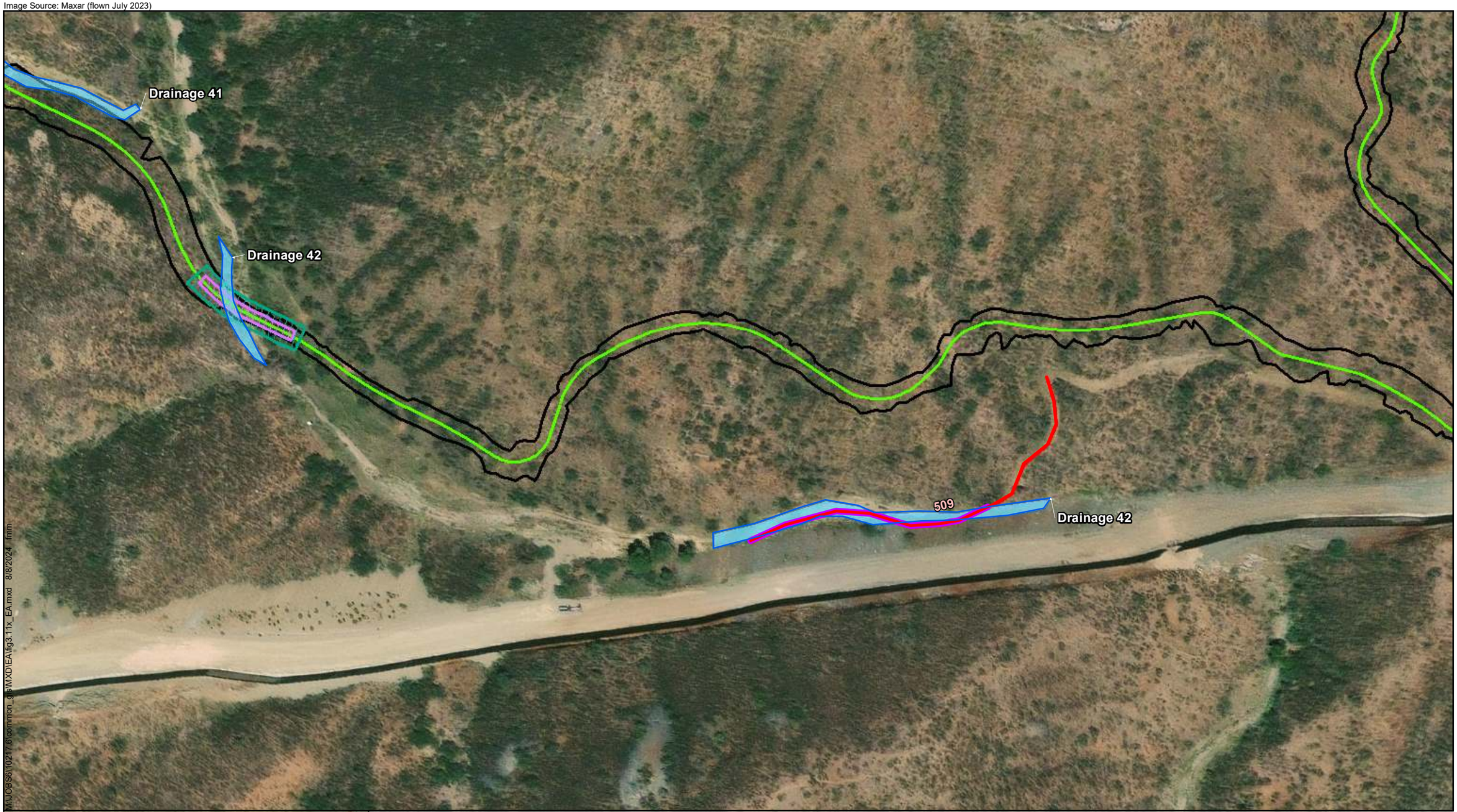
- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- USFS Alignment Disturbance Area
- Non-Wetland Drainage Features

Low-Water Crossing
- Permanent Impacts
- Temporary Impacts

0 Feet 125

FIGURE 3.26
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- Avoidance Areas
- USFS Alignment Disturbance Area
- Non-Wetland Drainage Features

Low-Water Crossing
- Permanent Impacts
- Temporary Impacts

0 Feet 125

FIGURE 3.27
Non-Wetland Drainage Features within the Analysis Area

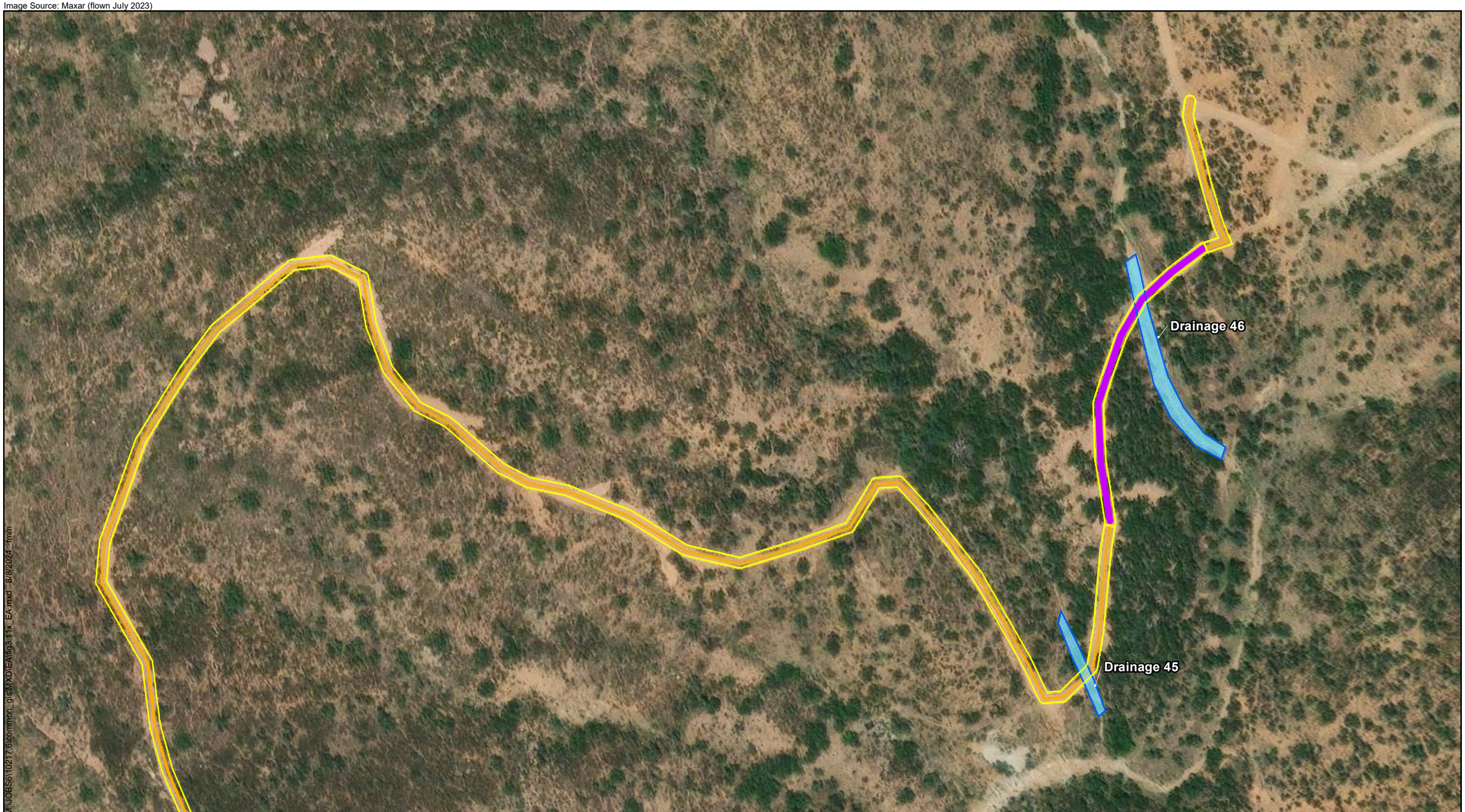
Image Source: Maxar (flown July 2023)

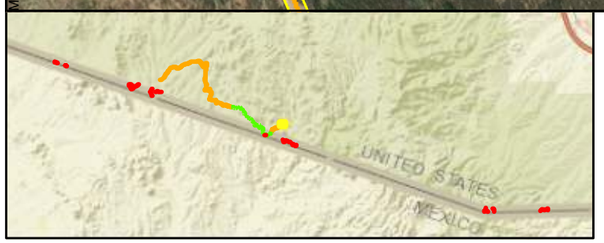
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
14-foot Road Width Disturbance Area
USFS Alignment Disturbance Area
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.28
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



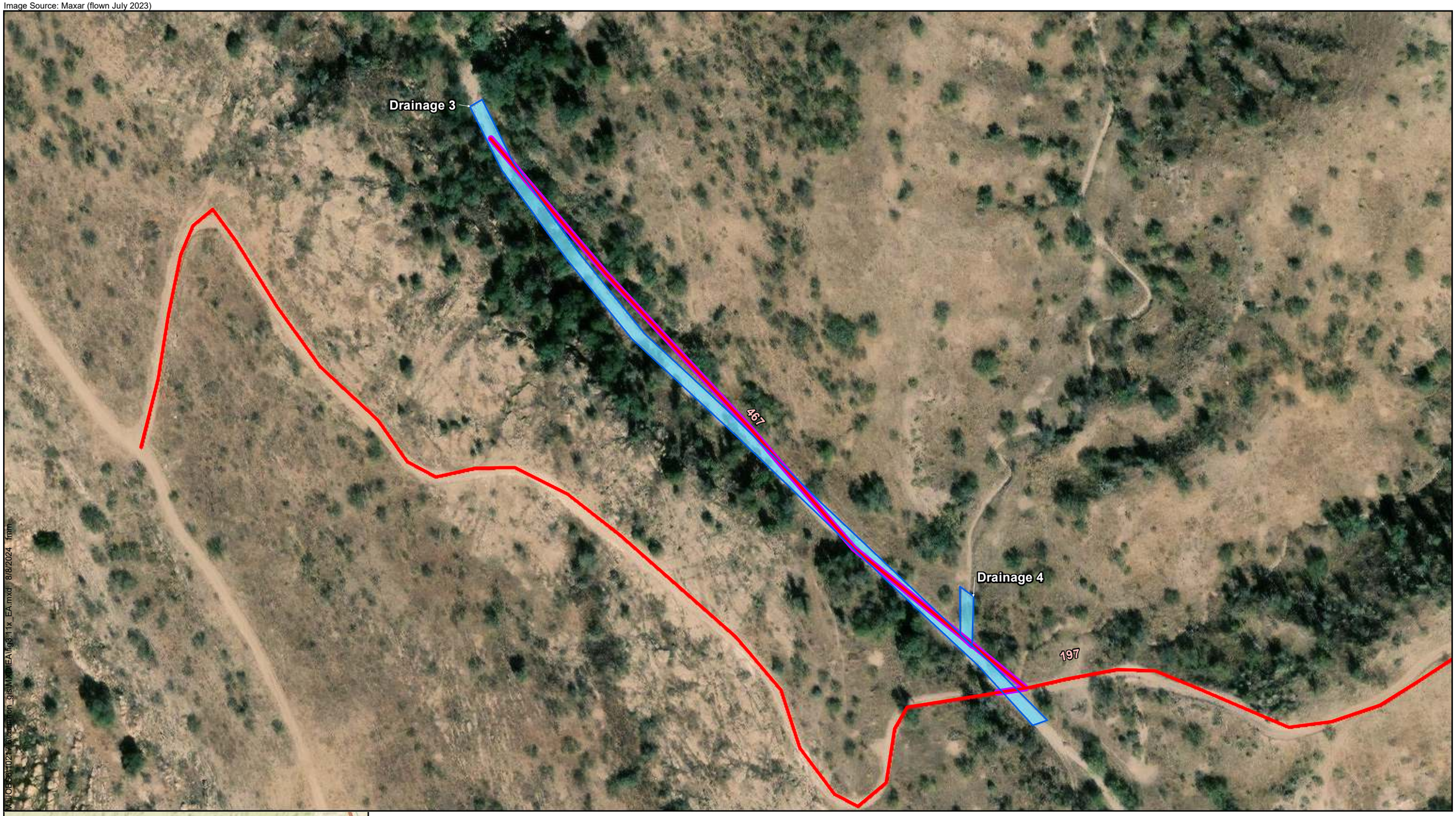


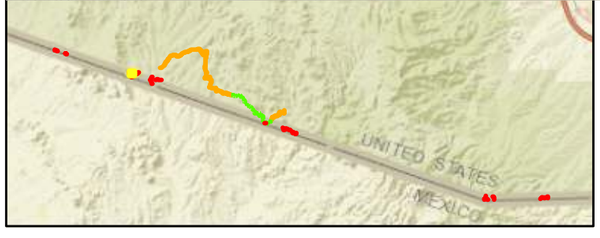
- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- Avoidance Areas
- 14-foot Road Width Disturbance Area
- Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.29
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



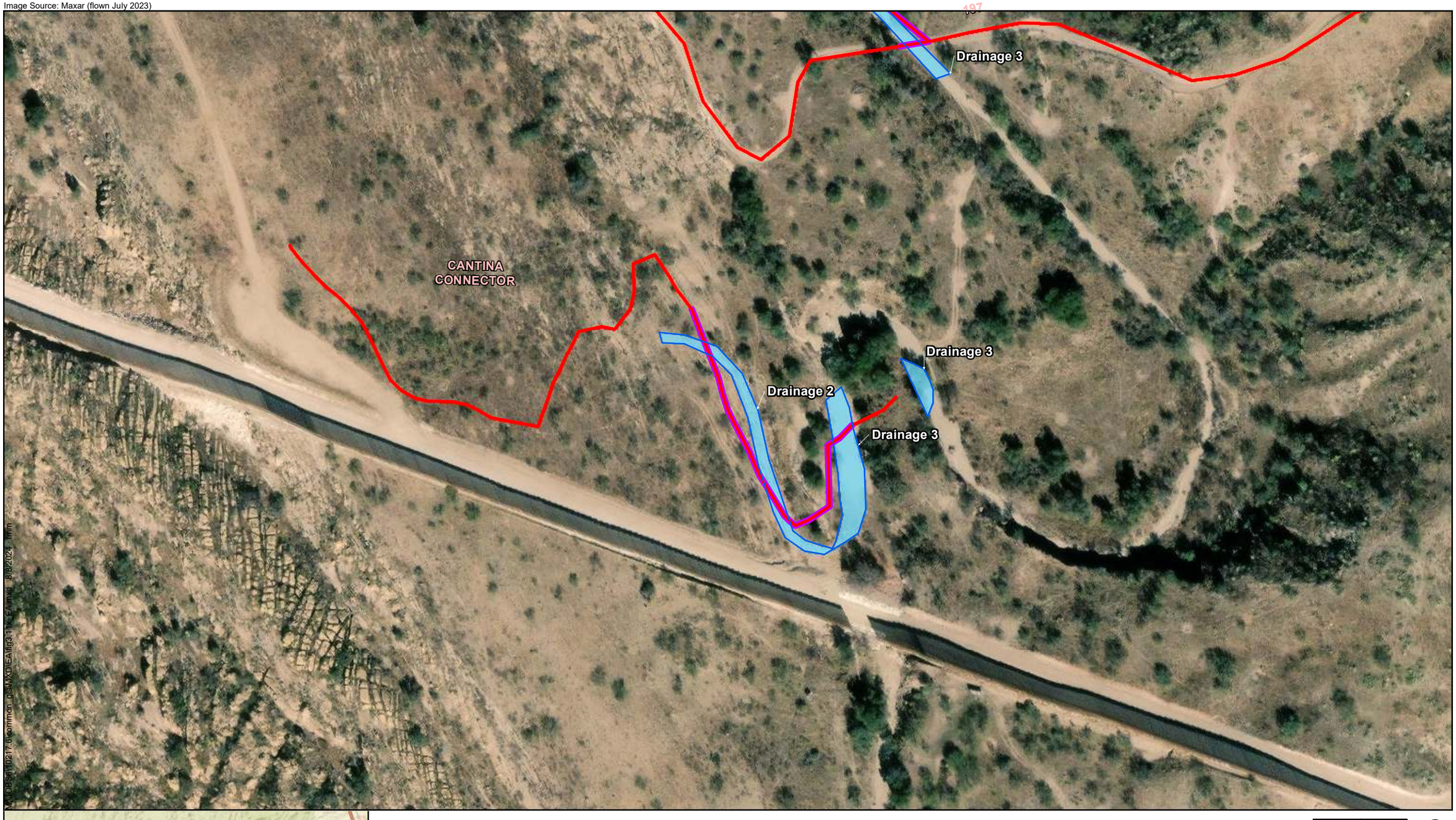


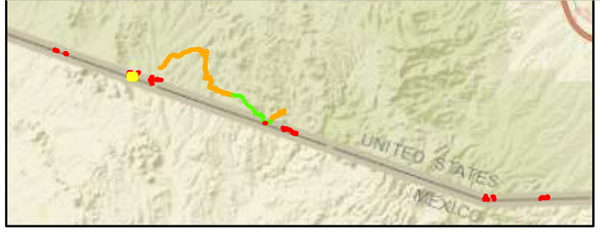
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.30
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)



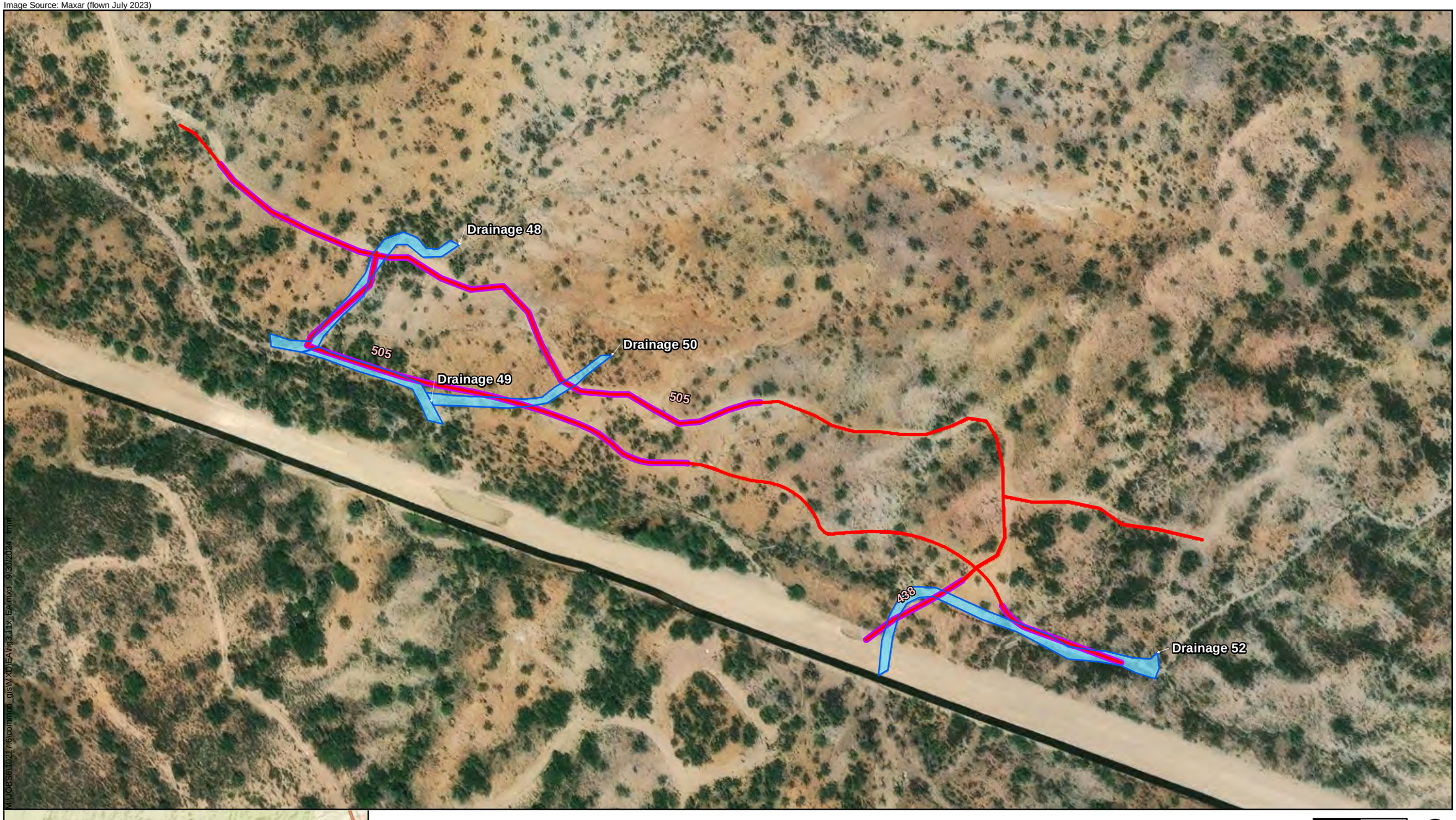


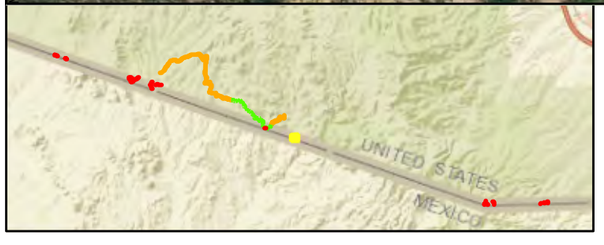
- Existing Road Segments
- New Road Segment
- Proposed Decommissioned Roads
- Avoidance Areas
- Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.31
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)





Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.32
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.33
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown July 2023)

602

Drainage 56

Drainage 55

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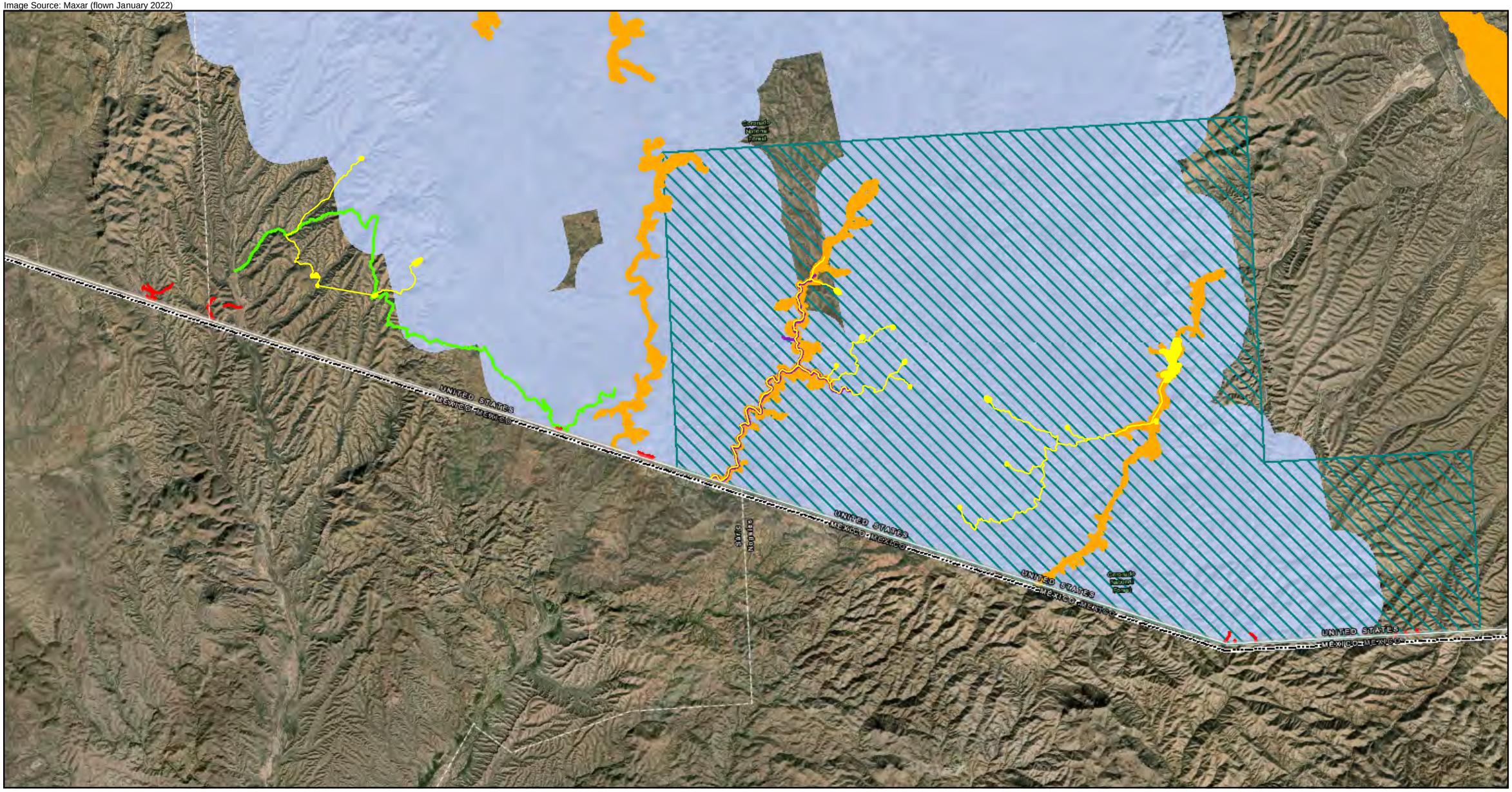
Existing Road Segments
New Road Segment
Proposed Decommissioned Roads
Avoidance Areas
Non-Wetland Drainage Features

0 Feet 125

FIGURE 3.34
Non-Wetland Drainage Features within the Analysis Area

Image Source: Maxar (flown January 2022)



Proposed Holden Canyon Connector Road Project Area

Proposed Decommissioned Roads

US/Mexico International Border

Critical Habitat Areas

Chiricahua leopard frog

Mexican spotted owl

Sonora chub

Yellow-billed Cuckoo

Jaguar

FIGURE 3.35

USFWS Listed Species Critical Habitat within the Analysis Area

APPENDIX B

Avoidance, Minimization, and Mitigation Measures

APPENDIX B

Avoidance, Minimization, and Mitigation Measures

Avoidance, minimization, and mitigation measures to reduce potential environmental impacts from the proposed road improvements, repairs, and construction, as well as decommissioning activities, would be incorporated into the Proposed Action. The measures would be applied to reduce potential impacts both during and post-construction.

Construction, Improvement, and Repair Measures (CIR)

CIR 1: Construction activities shall comply with all appropriate regulations, including Arizona Administrative Code R18-2-604 through 607, and R18-2-804; and Pima County Code 17.1 and 17.16, which require mitigation measures for the control of dust from open areas, roadways, and material handling; control of emissions from the operation of mobile equipment; fugitive dust permits for activities such as building roads; and limits on visible emissions.

CIR 2: During construction, if warning signs are used, signs will be in both English and Spanish.

CIR 3: Road surfaces would be composed of native material, and no additional surface materials would be required or brought into the project area.

CIR 4: During construction, designated areas would be established for equipment staging and parking to minimize the area of ground disturbance.

CIR 5: Steep excavated slopes would be stabilized.

CIR 6: Construction work would cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and materials.

CIR 7: All surface disturbances, including road construction and associated travel, would be kept to the minimum necessary to accomplish construction of the road.

CIR 8: Vehicle refueling and maintenance will be limited to upland areas with established spill prevention equipment in place (e.g., straw wattles, lined or paved areas, areas with no direct drainage).

CIR 9: To the maximum extent practicable, confine vehicular traffic to designated open routes of travel to and from the project site. Prohibit, within project boundaries, cross-country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance. Ensure all parking is in designated disturbed areas. For longer-term projects, mark designated travel corridors with easily observed removable or biodegradable markers.

CIR 10: No improvement, repair, construction, or decommissioning activities will occur at night.

CIR 11: All Occupational Safety and Health Administration requirements would be followed with respect to improvement, repair, construction, and decommissioning activity noise impacts. Ensure that all motorized equipment possesses properly working mufflers and are kept properly tuned to reduce backfires. Ensure all motorized generators will be in baffle boxes (a sound-resistant box that is placed over or around

a generator), have an attached muffler, or use other noise-abatement methods in accordance with industry standards.

CIR 12: Areas with known sensitive resources would be avoided (see Figures 2.1 through 2.20, Appendix A).

Cultural Resources (CR)

CR 1: Cultural properties will be avoided, or activities will be modified or limited in scope to avoid impacts (avoidance areas). Within decommissioned road segments with cultural properties, barricades will be moved outside of the boundaries and no tilling or reseeding will be allowed within cultural sites (avoidance areas). Within the proposed new road alignment, the road will be realigned to avoid cultural properties (road realignment to avoid known cultural properties has been completed).

CR 2: In the event of a discovery, work would be stopped within the immediate area of the find until a professional archaeologist can determine the nature of the resources discovered. If any previously unrecorded human remains are inadvertently discovered during improvement, repair, construction, and decommissioning activities, Federal law (Native American Graves Protection and Repatriation Act, Public Law 101-601; 25 United States Code § 3001-3013, 43 Code of Federal Regulations §10.4), USFS, and CBP policy would be followed.

CR 3: If human remains are discovered during road maintenance and repair, CBP and USFS will adhere to the stipulations of Public Resources Code Section 5097.98 and Health and Safety Code 7050 and stop work within 15 meters (50 feet) of the discovery. CBP and USFS will then contact the county coroner and a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in archaeology or history to determine the significance of the discovery. If appropriate, CBP and USFS would also adhere to Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations (43 Code of Federal Regulations 19). Depending on the recommendations of the coroner or the archaeologist, CBP and USFS will consult with culturally affiliated tribes and the Arizona State Historic Preservation Officer regarding their management and disposition in compliance with NAGPRA. Obtain all pertinent training materials for cultural resources for the areas where improvement, repair, construction, and decommissioning activities would occur. Prior to arrival on the work site, ensure key personnel are aware of the cultural resources potentially occurring in the Project Area and understand the proper measures to implement should cultural resources be encountered in the Project Area.

Scenery Resources (SR)

SR 1: Road shall be aligned and constructed to visually blend into the surrounding landscape.

SR 2: All surface disturbances, including road construction and associated travel, would be kept to the minimum necessary to accomplish construction of the road.

SR 3: Road to be constructed consistent with the guidelines of Scenic Integrity Objective High designation.

SR 4: Avoid light-colored riprap and boulders,

SR 5: Avoid visible drill holes if blasting cut faces is necessary.

SR 6: Use the recommended amount of integral colorant to new concrete structures (such as low-water crossing).

SR 7: Apply desert varnish to freshly exposed rock faces which contrast with landscape colors.

SR 8: Naturalize (conform to natural condition) roadways where widening and temporary travel way disturbance has occurred (roads, paths, pull outs) after the construction phase.

SR 9: Conduct a thorough cleanup of construction debris and discard according to applicable laws.

Soil Erosion Control (EC)

EC 1: Preparation and implementation of a SWPPP would address erosion control necessary to comply with the Arizona Pollutant Discharge Elimination System Construction General Permit conditions and apply mitigation measures where necessary.

EC 2: Areas with highly erodible soils would be considered when planning activities and measures, such as wattles, aggregate materials, and wetting compounds in the erosion-control mitigation would be incorporated.

EC 3: Construction would adhere to mitigation measures for erosion control and sediment runoff to surface waters (USFS 2012).

EC 4: During construction, disturbed areas would be routinely inspected to verify that erosion and stormwater controls are implemented and functioning as designed and are suitably maintained. Erosion and stormwater controls would be maintained as necessary to ensure proper and effective functioning.

EC 5: Reclamation of all surface disturbances must be initiated immediately upon completion of activities. Reclamation of disturbed areas shall, to the extent practicable, include contouring disturbances to blend with the surrounding terrain, replacing topsoil, smoothing, and blending the original surface colors to minimize impacts to visual resources, and seeding the disturbed areas with native seeds.

Streams/Floodplains/Drainage Areas (SFD)

SFD 1: The natural drainage pattern of the area would be maintained wherever practicable.

SFD 2: Stream crossings shall be oriented perpendicular to the channel to the extent practicable.

SFD 3: Approaches to stream crossings shall be kept to as gentle a slope as practicable.

SFD 4: At stream crossings, consider natural channel adjustments and possible channel location changes over the design life of the structure.

SFD 5: Design the stream crossing structure to have sufficient capacity to convey the design flow without appreciably altering streamflow characteristics.

SFD 6: Stream crossings shall be installed to sustain bankfull dimensions of width, depth, and slope and maintain streambed and bank resiliency and continuity through the structure.

SFD 7: At stream crossings, suitable measures shall be used to avoid or minimize scour and erosion of the channel, crossing structure, and foundation to maintain the stability of the channel and banks.

SFD 8: For stream crossings, select and design low-water crossing structures to maintain the function and bedload movement of the natural stream channel. Construct the low-water crossing to conform to the site, channel shape, and original streambed elevation and to minimize flow restriction, site disturbance, and channel blockage to the extent practicable.

SFD 9: Suitable measures shall be used to provide floodplain connectivity to the extent practicable.

SFD 10: In floodplains, suitable measures shall be used to protect fill from erosion and to avoid or minimize failure of the stream crossing at flood flows.

SFD 11: Riprap shall be placed in locations where erosion would be likely to occur without some form of energy dissipation due to concentrated runoff from road drainage pipes, grade dips, or leadout ditches.

SFD 12: During construction, silt fencing and floating silt curtains would be installed and maintained in areas susceptible to erosion to prevent movement of soil and sediment and to minimize turbidity increases in water.

SFD 13: Refueling and maintenance of project motorized equipment would occur at least 200 feet from any channel.

SFD 14: Best management practices as outlined in the 2012 USDA reference "National Best Management Practices for Water Quality Management on National Forest System Lands" would be implemented to ensure adverse impacts are minimized for soil, water, and air resources.

Low-Water Crossing (LWC)

LWC 1: Prepare an Erosion Control Plan for preventing sediment from reaching the drainage.

LWC 2: Construction activities should be done during the dry season or when precipitation and runoff are unlikely, whenever possible.

LWC 3: Service and refueling area should be kept far from wet areas, surface water, and drainages.

LWC 4: Minimize soil contamination potential by using berms around construction sites and impermeable liners, as appropriate for site conditions.

LWC 5: Heavy equipment should cross or work in and near streams only with specific protection requirements. During excavation, there should be a minimum disturbance on natural streambeds adjacent to the structure.

LWC 6: Road drainage should be controlled by providing dips that shunt water off the road.

LWC 7: Riprap should be sized and installed to resist erosive water velocities.

LWC 8: In relatively low-velocity, low-energy areas, use vegetative or biotechnical streambank stabilization measures, erosion control mats, turf reinforcing mats, etc.

LWC 9: "Disconnect" the road from the stream crossing by diverting road surface water before reaching the crossing, armoring ditches, and stabilizing the roadway surface approaching the crossing.

Vegetation and Invasive Species (VI)

VI 1: The perimeter of all new areas to be disturbed would be clearly demarcated using flagging or temporary construction fencing. No disturbance would be allowed outside that perimeter.

VI 2: During construction, vehicles would be required to stay on designated driving routes to avoid excessive soil and vegetation disturbance, to minimize the introduction and spread of noxious weeds.

VI 3: Disturbed areas would be revegetated with native species.

VI 4: Native seeds mixes will be obtained from preferred local sources and approved by USFS. If possible, seeds will be pre-harvested from the project area.

VI 5: Suitable species and establishment techniques would be used to cover or revegetate disturbed areas in compliance with local direction and requirements in accordance with USFS Manual (FSM) 2070 and FSM 2080 for vegetation ecology and prevention and control of invasive species.

VI 6: If vegetation must be removed, allow natural regeneration of native plants by cutting vegetation with hand tools, mowing, trimming, or other removal methods that allow root systems to remain intact.

VI 7: Vegetation targeted for retention would be flagged to reduce the likelihood of being disturbed.

VI 8: Fill material, sandbags, hay bales, and mulch brought in from outside the project area would be identified by its source location. Contractors would use sources that are sterile or weed-free.

VI 9: Removal of live and dead trees over 8-inch diameter at breast height would be restricted during the period April 1 through August 15 unless approved by the District Biologist in writing to avoid potential nest and roost destruction and loss of immature cavity nesters, migratory birds, and roosting bats.

VI 10: Trees that are 6 inches in diameter at breast height (breast height defined as 4.5 feet) would be left on-site with no more than one-third of each individual tree pruned from the ground up to a maximum of 8 feet. For example, a 24-foot tree could be pruned 8 feet up from the ground. If mesquite species are within the road alignment, these trees can be removed. If oak species are within the road alignment, trees must be left in place and avoided.

VI 11: Revegetation efforts must establish a stable biological ground cover equal to that which occurred prior to disturbance. Mulching may be appropriate for conserving moisture and holding seed onsite, thus improving the chances for successful establishment.

VI 12: If mechanical methods are used to remove invasive plants, the entire plant should be removed and placed in a disposal area. Training to identify non-native invasive plants will be provided for CBP personnel or contractors, as necessary.

VI 13: To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment would be washed at the contractor's storage facility prior to entering the construction site.

VI 14: To prevent invasive species seeds from leaving the site, all construction equipment would be inspected and all attached plant/vegetation and soil/mud debris would be removed prior to leaving the construction site.

VI 15: To prevent the spread of invasive plant species, guidance from the following resources will be implemented: Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species (DiVittorio et al. 2012); Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers (California Invasive Plant Council 2012); and Invasive Plant Prevention Guidelines (Clark 2003).

Wildlife Resources (WR)

WR 1: Animal collisions would be minimized during construction activities by limiting speeds on the proposed road to no more than 15 miles per hour and employing the use of wildlife crossings.

WR 2: The visible space shall be checked underneath all vehicles and heavy equipment for listed species and other wildlife prior to moving vehicles and equipment at the beginning of each workday and after vehicles have idled for more than 15 minutes.

WR 3: To prevent entrapment of wildlife species, ensure excavated, steep-walled holes or trenches are either completely covered by plywood or metal caps at the close of each workday or provided with one or more escape ramps (at no greater than 1,000-foot intervals and sloped less than 45 degrees) constructed of earth fill or wooden planks.

Listed Special Status Species (SSS)

SSS 1: A training program will be developed and implemented to inform construction personnel of the listed species that occur within the project area, penalties for violation of state or federal laws, implementation of included conservation actions/best management practices, and reporting requirements.

SSS 2: To protect individuals of listed species within the project area, suspend work in the immediate vicinity of the individual until it moves out of harm's way on its own, or enlist a qualified specialist (individuals or agency personnel with a permit to handle the species) to relocate the animal to a nearby safe location in accordance with accepted species-handling protocols.

SSS 3: For activities involving heavy equipment, seasonal restrictions might be required to avoid impacts on threatened or endangered species in areas where these species or their potential habitat occur.

SSS 4: Initial mechanical vegetation clearing will be timed to avoid the migration, breeding, and nesting time frame of special status birds (April 1 to September 30). Repair, improvement, construction, and decommissioning activities are planned to occur during the fall/winter season, October 1 through March 30.

SSS 5: Special status plant species would be flagged and avoided during construction.

Yellow-billed Cuckoo (Cuckoo)

Cuckoo 1: A protocol survey will be conducted no more than five days prior to construction of a scheduled road segment within or near suitable habitat to determine the presence of yellow-billed cuckoo during the breeding season (June 1 through September 30).

Chiricahua Leopard Frog (Frog)

Frog 1: A site-specific Stormwater Pollution Prevention Plan (SWPPP) and a spill protection plan will be prepared and regulatory approval sought, as required by regulations, for activities that could result in sedimentation and that occur within 0.3 mile of potentially occupied Chiricahua leopard frog habitat. This will include, but is not limited to, placing straw bale type sediment traps at the inlet of ponds or stock tanks and upstream of drainages known to be occupied by the species or within critical habitat of the species.

Frog 2: Any use or storage of fuels will be kept 0.3 mile away from locations where this species may occur.

Frog 3: Erosion control measures within Chiricahua leopard frog occupied or potential habitat would exclude any woven mesh materials (such as wattles) that can entrap these animals.

Bartram's Stonecrop and Beardless Chinchweed (SSS Plant)

SSS Plant 1: Prior to beginning ground-disturbing activities, surveys for Bartram's stonecrop and beardless chinchweed would be completed within areas deemed as suitable habitat. If individuals of these species are found, the USFWS species lead would be contacted to determine the appropriate course of action prior to Proposed Action activities occur.

Migratory Birds (MB)

MB 1: Initial mechanical vegetation clearing should be timed to avoid the migration, breeding, and nesting time frame of migratory birds (April 1 to August 15; timeframe when the majority of annual bird nesting occurs). If initial mechanical vegetation clearing must be implemented during April 1 through August 15, a survey for nesting migratory birds would be conducted immediately prior to the start of activities. If an active nest is found, a buffer zone would be established around the nest and no activities would occur within that zone until nestlings have fledged and abandoned the nest.

MB 2: If improvement, repair, construction, or decommissioning activities are scheduled to occur during the bird-nesting season (April 1 to August 15), a survey for migratory birds will be conducted prior to all activities to be implemented during the nesting period in areas where birds might be nesting.

MB 3: If improvement, repair, construction, or decommissioning activities are scheduled to occur during the bird-nesting season (April 1 to August 15), take steps to prevent birds from establishing nests in the potential impact area. These steps could include covering equipment and structures, trimming vegetation to reduce suitability for nesting, and use of various excluders (e.g., noise). Once a nest is established, it must be protected until all young have fledged and left the nest site. If nesting birds are found during the supplemental survey, defer construction or intrusive maintenance activities until the birds have left the nest.

APPENDIX C

U.S. Fish and Wildlife Service Official Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To: 03/26/2024 20:25:03 UTC
Project Code: 2023-0056275
Project Name: Holden Canyon Access Road and Decommissioned Roads

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.
If the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https://www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit this link or visit https://www.fws.gov/program/national-

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/project-evaluation-program/).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2023-0056275
Project Name: Holden Canyon Access Road and Decommissioned Roads
Project Type: Border Security
Project Description: Road maintenance & repair, new road segment, decommissioning of roads
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@31.43409325,-111.3813246746206,14z

Counties: Pima and Santa Cruz counties, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 18 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Jaguar *Panthera onca* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3944	Endangered
Ocelot *Leopardus (=Felis) pardalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4474	Endangered
Sonoran Pronghorn *Antilocapra americana sonoriensis* Population: U.S.A. (AZ), Mexico No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4750	Experimental Population, Non-Essential

BIRDS

NAME	STATUS
Cactus Ferruginous Pygmy-owl *Glaucidium brasilianum cactorum* There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/1225	Threatened
California Least Tern *Sternula antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Masked Bobwhite (quail) *Colinus virginianus ridgwayi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3484	Endangered
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Sonoyta Mud Turtle *Kinosternon sonoriense longifemorale* There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/7276	Endangered

AMPHIBIANS

NAME	STATUS
Chiricahua Leopard Frog *Rana chiricahuensis*	Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1516

FISHES

NAME	STATUS
Gila Topminnow (incl. Yaqui) *Poeciliopsis occidentalis*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1116

Sonora Chub *Gila ditaenia*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1394

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

FLOWERING PLANTS

NAME	STATUS
Arizona Eryngo *Eryngium sparganophyllum*	Endangered

Population:
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/10705

Bartram's Stonecrop *Graptopetalum bartramii*	Threatened

There is **proposed** critical habitat for this species.
Species profile: https://ecos.fws.gov/ecp/species/8382

Beardless Chinchweed *Pectis imberbis*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1348

Huachuca Water-umbel *Lilaeopsis schaffneriana var. recurva*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1201

CRITICAL HABITATS

There are 4 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Chiricahua Leopard Frog *Rana chiricahuensis* https://ecos.fws.gov/ecp/species/1516#crithab	Final
Jaguar *Panthera onca* https://ecos.fws.gov/ecp/species/3944#crithab	Final
Mexican Spotted Owl *Strix occidentalis lucida* https://ecos.fws.gov/ecp/species/8196#crithab	Final
Yellow-billed Cuckoo *Coccyzus americanus* https://ecos.fws.gov/ecp/species/3911#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

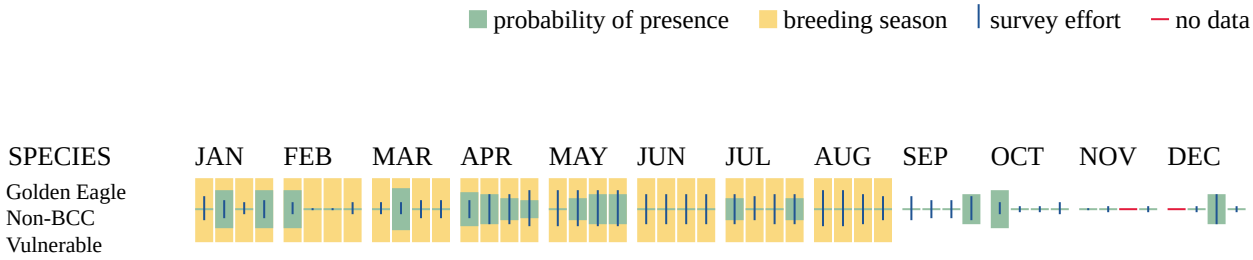
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Elegant Trogon *Trogon elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9624	Breeds Apr 1 to Aug 31
Gilded Flicker *Colaptes chrysoides* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2960	Breeds May 1 to Aug 10

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Phainopepla *Phainopepla nitens lepida* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11973	Breeds Mar 1 to Aug 20
Plumbeous Vireo *Vireo plumbeus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11933	Breeds May 10 to Aug 5
Scott's Oriole *Icterus parisorum* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11968	Breeds May 21 to Aug 15
Varied Bunting *Passerina versicolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9725	Breeds Apr 25 to Sep 30

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R4SBC
- R5UBH

FRESHWATER POND

- PUBF

IPAC USER CONTACT INFORMATION

Agency: Department of Homeland Security
Name: Susy Morales
Address: 4746 West River Horse Lane
City: Tucson
State: AZ
Zip: 85757
Email smorales@reconenvironmental.com
Phone: 5204814984

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Forest Service

APPENDIX D

Arizona Environmental Online Review Tool Report

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
Holden Canyon Access Road and Decommission Roads

User Project Number:
9740.2

Project Description:
Under the Proposed Action, the CBP Tucson Sector, in cooperation with the Forest Service, proposes to improve, repair, and construct approximately 13 12.5 miles of road within the Forest Service Nogales Ranger District (see Figure 1.1) to provide enhanced access for USBP patrol activities in the Holden Canyon area. The Proposed Action also includes decommissioning of approximately 3.9 miles of roads segments no longer needed for patrol and access in the vicinity of the Holden Canyon area and the international border.

Project Type:
Law Enforcement Activities Associated with the Border, Access roads

Contact Person:
Susy Morales

Organization:
RECON Environmental, Inc.

On Behalf Of:
USBP

Project ID:
HGIS-18681

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

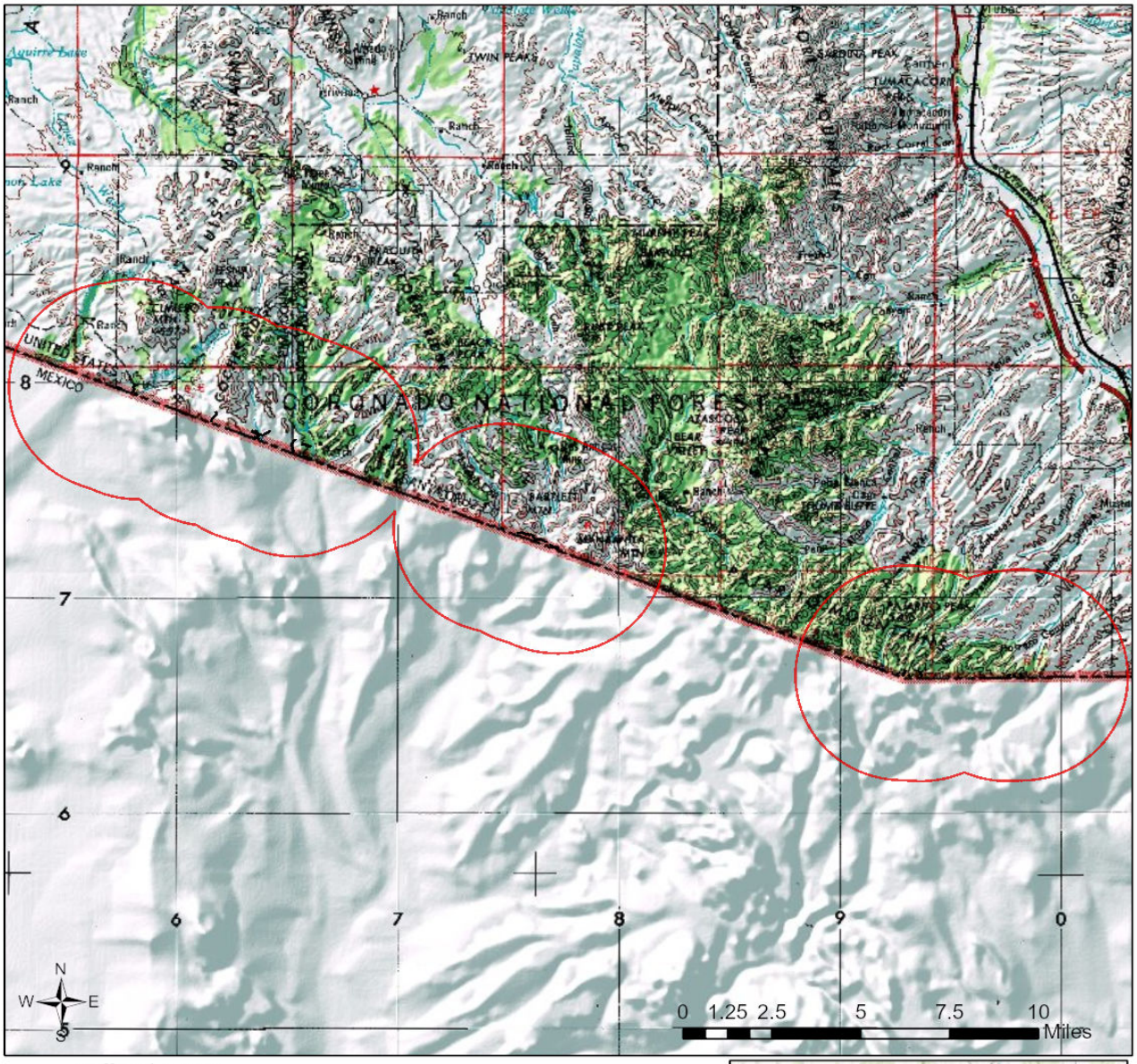
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.

Holden Canyon Access Road and Decommission Roads

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 44.18

Lat/Long (DD): 31.3916 / -111.2520

County(s): Pima; Santa Cruz

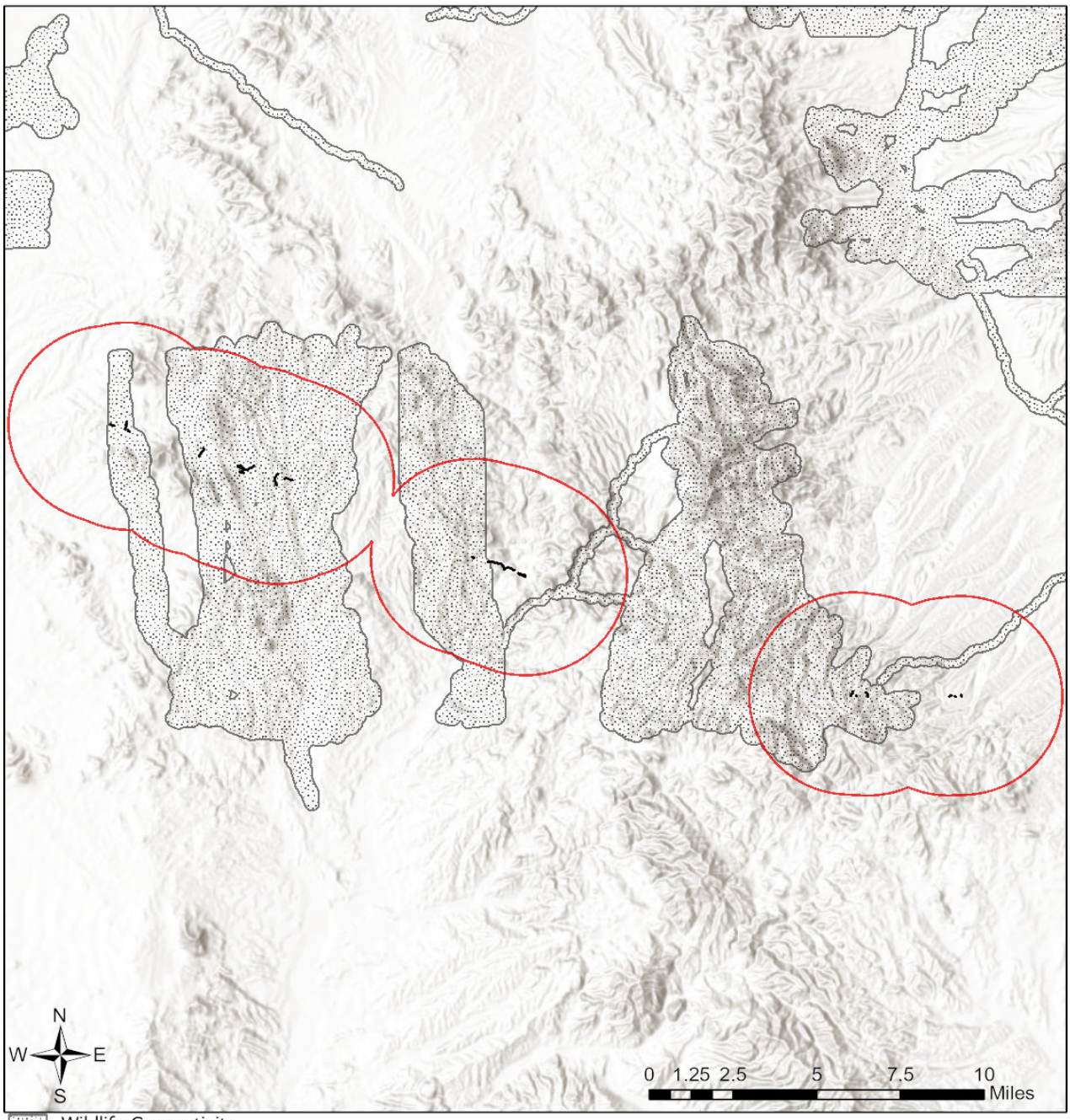
AGFD Region(s): Tucson

Township/Range(s): T23S, R10E; T23S, R11E; T23S, R9E +

USGS Quad(s): BARTLETT MOUNTAIN; CUMERO MOUNTAIN +

Holden Canyon Access Road and Decommission Roads

Web Map As Submitted By User



Wildlife Connectivity

Buffered Project Boundary

Project Boundary

Project Size (acres): 44.18

Lat/Long (DD): 31.3916 / -111.2520

County(s): Pima; Santa Cruz

AGFD Region(s): Tucson

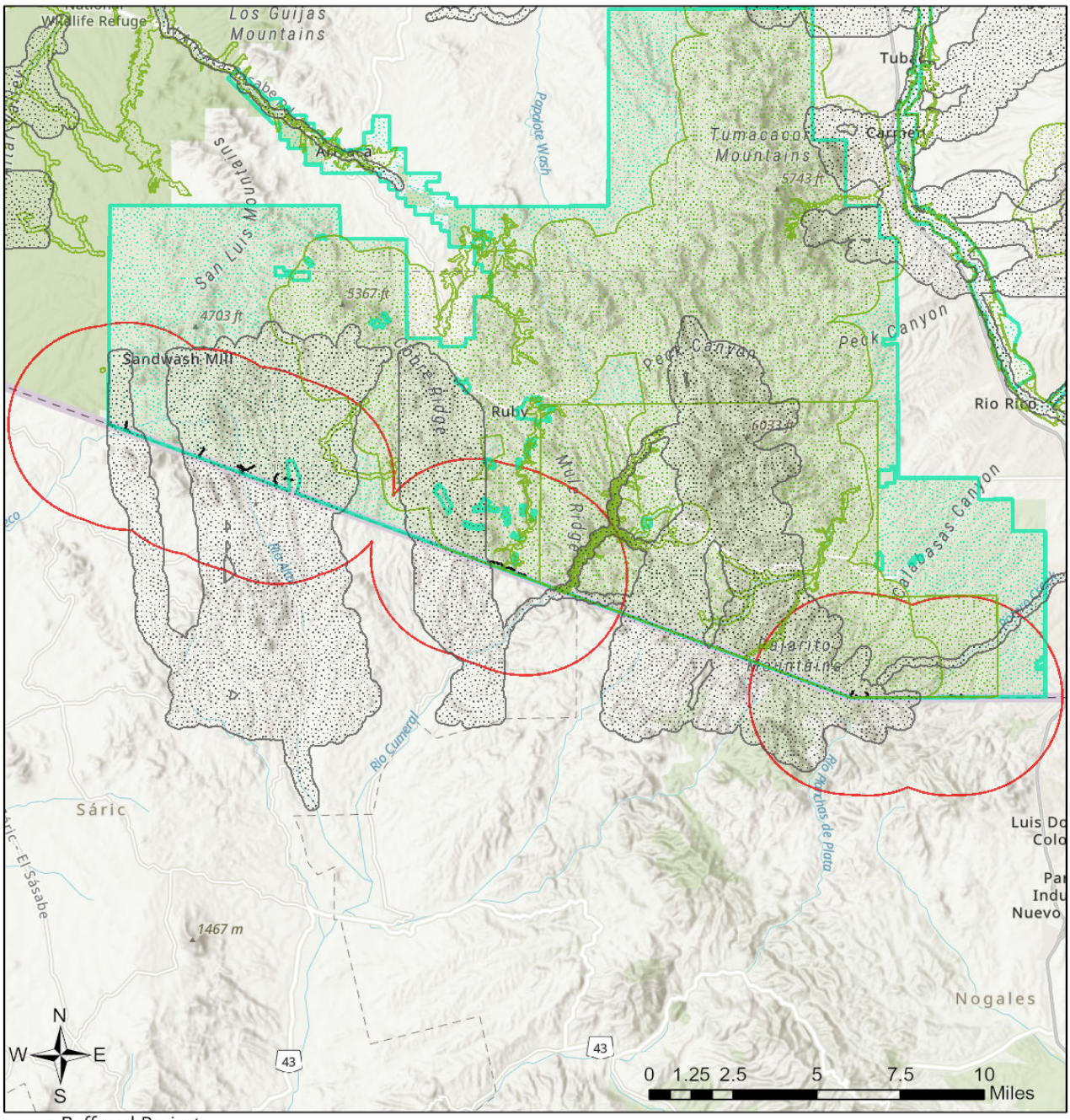
Township/Range(s): T23S, R10E; T23S, R11E; T23S, R9E +

USGS Quad(s): BARTLETT MOUNTAIN; CUMERO MOUNTAIN +

Esri, NASA, NGA, USGS

Holden Canyon Access Road and Decommission Roads

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 44.18

Lat/Long (DD): 31.3916 / -111.2520

County(s): Pima; Santa Cruz

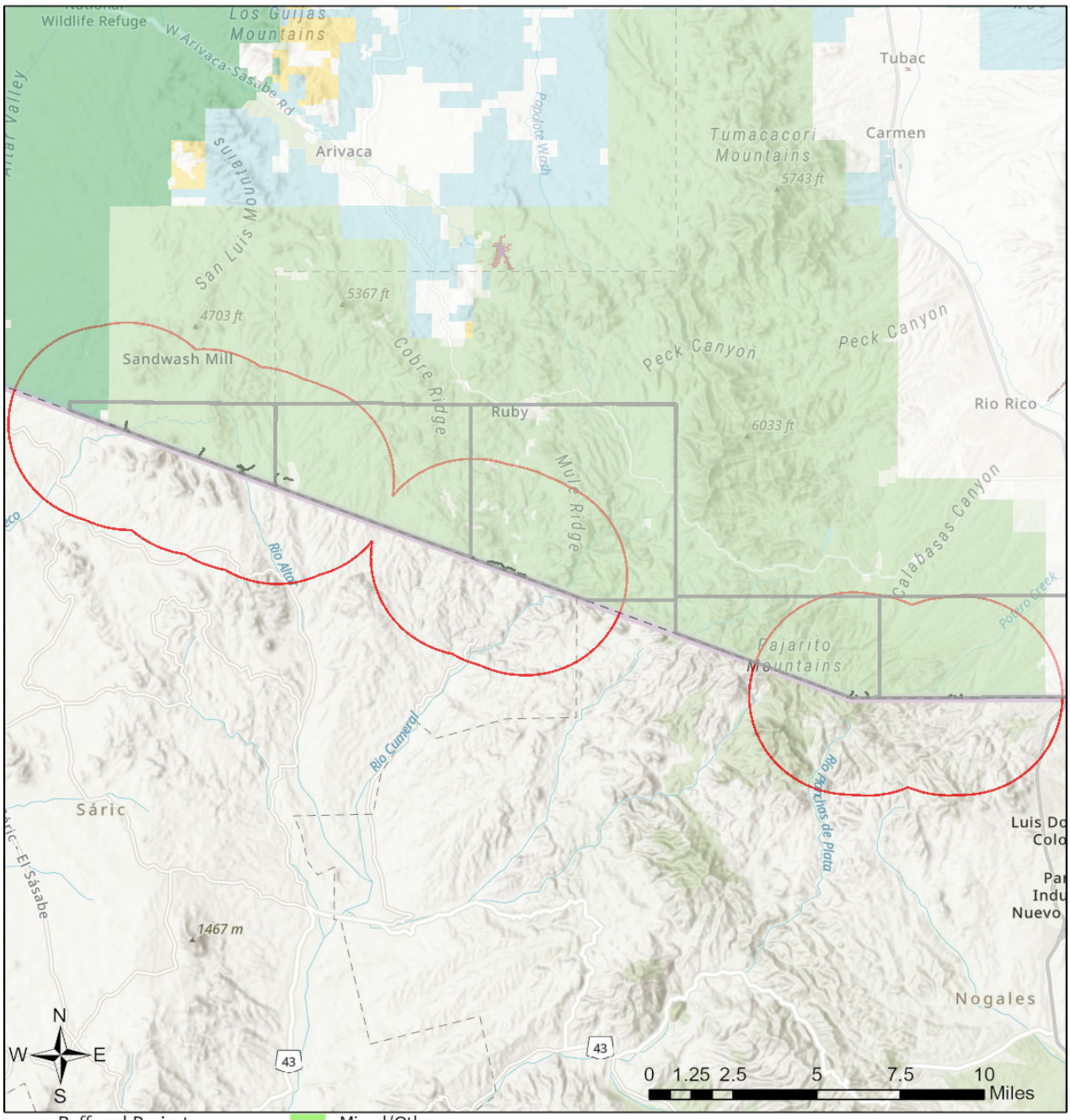
AGFD Region(s): Tucson

Township/Range(s): T23S, R10E; T23S, R11E; T23S, R9E +

USGS Quad(s): BARTLETT MOUNTAIN; CUMERO MOUNTAIN +

Holden Canyon Access Road and Decommission Roads

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 44.18

Lat/Long (DD): 31.3916 / -111.2520

County(s): Pima; Santa Cruz

AGFD Region(s): Tucson

Township/Range(s): T23S, R10E; T23S, R11E; T23S, R9E +

USGS Quad(s): BARTLETT MOUNTAIN; CUMERO MOUNTAIN +

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	SC	S		HS	
Amphispiza bilineata	Black-throated Sparrow					2
Amphispiza quinquestriata	Five-striped Sparrow					2
Antrostomus ridgwayi	Buff-collared Nightjar		S			2
Aphelocoma woodhouseii	Woodhouse's Scrub-Jay					2
Argia sabino	Sabino Canyon Dancer	SC	S			
Asio otus	Long-eared Owl					2
Aspidoscelis stictogrammus	Giant Spotted Whiptail	SC	S			2
Aspidoscelis xanthonotus	Red-backed Whiptail	SC	S			2
Auriparus flaviceps	Verdin					2
Bat Colony						
Buteo plagiatus	Gray Hawk	SC				
Buteo swainsoni	Swainson's Hawk					2
Camptostoma imberbe	Northern Beardless-Tyrannulet		S			2
Campylorhynchus brunneicapillus	Cactus Wren					2
Capsicum annuum var. glabriusculum	Chiltepin		S			
Cardinalis sinuatus	Pyrrhuloxia					2
Carex chihuahuensis	Chihuahuan Sedge		S			
Carex ultra	Cochise Sedge		S	S		
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		2
Choisya mollis	Santa Cruz Star Leaf	SC	S			
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S		1
Colinus virginianus ridgwayi	Masked Bobwhite	LE				1
Coluber bilineatus	Sonoran Whipsnake					2
Corvus cryptoleucus	Chihuahuan Raven					2
Coryphantha recurvata	Santa Cruz Beehive Cactus		S		HS	
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Dalea tentaculoides	Gentry's Indigo Bush	SC	S	S	HS	
Echinocereus santaritensis	Santa Rita Hedgehog Cactus				SR	
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1
Falco sparverius	American Kestrel					2
Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad			S		2
Gila ditaenia	Sonora Chub	LT				1
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Graptopetalum bartramii	Bartram Stonecrop	LT	S	S	SR	
Heloderma suspectum	Gila Monster					1
Icterus bullockii	Bullock's Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		2

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus frantzii	Desert Red Bat		S			2
Lobelia laxiflora	Mexican Lobelia				SR	
Lotus alamosanus	Sonoran Bird's-foot Trefoil		S			
Megascops trichopsis	Whiskered Screech-owl		S			2
Melanerpes uropygialis	Gila Woodpecker					2
Melozone fusca	Canyon Towhee					2
Metastelma mexicanum	Wiggins Milkweed Vine	SC	S			
Myiarchus tuberculifer	Dusky-capped Flycatcher					2
Myotis velifer	Cave Myotis	SC		S		2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Opuntia versicolor	Stag-horn Cholla				SR	
Oxybelis aeneus	Brown Vinesnake		S			2
Pachyramphus aglaiae	Rose-throated Becard		S			2
Panthera onca	Jaguar	LE		S		1
Passiflora arizonica	Arizona Passionflower		S			
Peucaea carpalis	Rufous-winged Sparrow					2
Plestiodon callicephalus	Mountain Skink		S			2
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE,UR		S		1
Rana chiricahuensis	Chiricahua Leopard Frog	LT		S		1
Rana yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Sialia sialis fulva	Azure Bluebird					2
Sigmodon ochrognathus	Yellow-nosed Cotton Rat	SC				3
Smilisca fodiens	Lowland Burrowing Treefrog			S		2
Strix occidentalis lucida	Mexican Spotted Owl	LT		S		1
Tadarida brasiliensis	Brazilian Free-tailed Bat					2
Tragia laciniata	Sonoita Noseburn		S			
Trogon elegans	Elegant Trogon		S			2
Tyrannus crassirostris	Thick-billed Kingbird		S			2

Note: Status code definitions can be found at https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/.

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Atascosa Highlands IBA	Important Bird Area					
Atascosa Highlands	Conservation Opportunity Area					
Buenos Aires NWR and Altar Valley	Conservation Opportunity Area					

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
CH for Coccyzus americanus	Yellow-billed Cuckoo Designated Critical Habitat					
CH for Panthera onca	Jaguar Designated Critical Habitat					
CH for Strix occidentalis lucida	Mexican Spotted Owl Designated Critical Habitat					
Mexico - Tumacacori - Baboquivari Connectivity Assessment	Wildlife Connectivity					
San Luis Mountains/Coches Ridge to Mexico	Pima County Wildlife Movement Area - Landscape					
Tumacacori/San Luis Mountains Wildland Block	Pima County Wildlife Movement Area - Diffuse					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Accipiter gentilis	Northern Goshawk	SC	S	S		2
Ammodramus savannarum ammolegus	Arizona grasshopper sparrow					
Ammodramus savannarum perpallidus	Western Grasshopper Sparrow					
Ammospermophilus harrisii	Harris' Antelope Squirrel					
Amphispiza quinquestriata	Five-striped Sparrow					2
Anthus spragueii	Sprague's Pipit	SC				2
Antilocapra americana americana	American Pronghorn					2
Antrostomus ridgwayi	Buff-collared Nightjar		S			2
Aquila chrysaetos	Golden Eagle			S		2
Asio otus	Long-eared Owl					2
Aspidoscelis sonorae	Sonoran Spotted Whiptail					2
Aspidoscelis stictogramma	Giant Spotted Whiptail					
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Auriparus flaviceps	Verdin					2
Buteo regalis	Ferruginous Hawk	SC		S		2
Buteo swainsoni	Swainson's Hawk					2
Buteogallus anthracinus	Common Black Hawk					2
Calcarius ornatus	Chestnut-collared Longspur					2
Callipepla squamata	Scaled Quail					2
Calypte costae	Costa's Hummingbird					2
Camptostoma imberbe	Northern Beardless-Tyrannulet		S			2
Campylorhynchus brunneicapillus	Cactus Wren					2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Catharus ustulatus	Swainson's Thrush					2
Catostomus insignis	Sonora Sucker	SC	S	S		2
Chaetodipus baileyi	Bailey's Pocket Mouse					2
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		2
Chordeiles minor	Common Nighthawk					2
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)					
Colaptes chrysoides	Gilded Flicker			S		2
Colinus virginianus ridgwayi	Masked Bobwhite					
Coluber bilineatus	Sonoran Whipsnake					2
Columbina inca	Inca Dove					2
Corvus cryptoleucus	Chihuahuan Raven					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Craugastor augusti	Barking Frog					2
Crotalus tigris	Tiger Rattlesnake					2
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Cynomys ludovicianus	Black-tailed Prairie Dog	CCA		S		1
Cyrtonyx montezumae	Montezuma Quail					
Dendrocygna autumnalis	Black-bellied Whistling-Duck					2
Didelphis virginiana californica	Mexican Opossum					2
Dryobates arizonae	Arizona Woodpecker		S			2
Elgaria kingii	Madrean Alligator Lizard					2
Empidonax wrightii	Gray Flycatcher					2
Eugenes fulgens	Rivoli's Hummingbird					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Eumops underwoodi	Underwood's Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad					
Gila ditaenia	Sonora Chub	LT				1
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl					
Glaucidium gnoma gnoma	Mountain Pygmy-owl					
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Gyalopion quadrangulare	Thornscrub Hook-nosed Snake		S			2
Haemorhous cassinii	Cassin's Finch					2
Heloderma suspectum	Gila Monster					1
Hypsiglena sp. nov.	Hooded Nightsnake					2
Icterus bullockii	Bullock's Oriole					2
Icterus cucullatus	Hooded Oriole					2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Icterus parisorum	Scott's Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Kinosternon arizonense	Arizona Mud Turtle					2
Kinosternon sonoriense sonoriense	Desert Mud Turtle					
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus blossevillii	Western Red Bat		S			2
Lasiurus cinereus	Hoary Bat					2
Lasiurus xanthinus	Western Yellow Bat		S			2
Leopardus pardalis	Ocelot	LE				1
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				1
Lepus alleni	Antelope Jackrabbit					2
Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				1
Lithobates tarahumarae	Tarahumara Frog	SC	S			1
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Macrotus californicus	California Leaf-nosed Bat	SC		S		2
Megascops kennicottii	Western Screech-owl					
Megascops trichopsis	Whiskered Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2
Melospiza lincolnii	Lincoln's Sparrow					2
Melozone aberti	Abert's Towhee		S			2
Micrathene whitneyi	Elf Owl					
Micruroides euryxanthus	Sonoran Coralsnake					2
Myadestes townsendi	Townsend's Solitaire					2
Myiarchus tuberculifer	Dusky-capped Flycatcher					2
Myotis auriculus	Southwestern Myotis					2
Myotis thysanodes	Fringed Myotis	SC				2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Notiosorex cockrumi	Cockrum's Desert Shrew					2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Nyctinomops macrotis	Big Free-tailed Bat	SC				2
Oxybelis aeneus	Brown Vinesnake		S			2
Panthera onca	Jaguar	LE				1
Parabuteo unicinctus	Harris's Hawk					2
Passerculus sandwichensis	Savannah Sparrow					2
Patagioenas fasciata	Band-tailed Pigeon					2
Perognathus amplus cineris	Wupatki Arizona Pocket Mouse					
Perognathus amplus	Arizona Pocket Mouse					2
Peucaea botterii arizonae	Arizona Botteri's Sparrow			S		2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Peucaea carpalis	Rufous-winged Sparrow					2
Phrynosoma solare	Regal Horned Lizard					2
Phyllorhynchus browni	Saddled Leaf-nosed Snake					2
Plestiodon callicephalus	Mountain Skink		S			2
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1
Polioptila nigriceps	Black-capped Gnatcatcher					2
Pooecetes gramineus	Vesper Sparrow					2
Progne subis hesperia	Desert Purple Martin					
Psiloscops flammeolus	Flammulated Owl					2
Sciurus arizonensis	Arizona Gray Squirrel					2
Senticolis triaspis	Green Ratsnake		S			2
Setophaga nigrescens	Black-throated Gray Warbler					2
Sialia sialis fulva	Azure Bluebird					
Smilisca fodiens	Lowland Burrowing Treefrog			S		2
Spizella breweri	Brewer's Sparrow					2
Strix occidentalis lucida	Mexican Spotted Owl	LT				1
Tadarida brasiliensis	Brazilian Free-tailed Bat					
Tantilla yaquia	Yaqui Black-headed Snake		S			2
Terrapene ornata	Ornate Box Turtle			S		1
Thomomys umbrinus intermedius	Southern Pocket Gopher					2
Toxostoma bendirei	Bendire's Thrasher					2
Troglodytes pacificus	Pacific Wren					2
Trogon elegans	Elegant Trogon		S			2
Tyrannus crassirostris	Thick-billed Kingbird		S			2
Xyrauchen texanus	Razorback Sucker	LE, PT				1

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Cyrtonyx montezumae	Montezuma Quail					
Odocoileus hemionus	Mule Deer					
Odocoileus virginianus	White-tailed Deer					
Patagioenas fasciata	Band-tailed Pigeon					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Law Enforcement Activities Associated with the Border, Access roads

Project Type Recommendations:
During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/.

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly at PEP@azgfd.gov.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

HDMS records indicate that **Chiricahua Leopard Frogs** have been documented within the vicinity of your project area. Please review the Chiricahua Leopard Frog Management Guidelines found at: https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/FINALLithchirHabitatGdlns.pdf

Analysis indicates that your project is located in the vicinity of an identified **Conservation Opportunity Area (COA)**. While there are many areas in Arizona that present abundant conservation opportunities, COAs are specific areas on the landscape that the Department identified as having the greatest potential for conservation efforts. COAs were identified using species and habitat data, the presence of unique landscape features, and Departmental expertise. COAs range in size, scope, and focal species and/or habitats and are strictly a non-regulatory conservation tool for the public and our conservation partners to consider. For more information regarding this particular COA near your project area and the Department's suggestions for potential conservation efforts, please visit the COA profile at https://awcs.azgfd.com/conservation-opportunity-areas.

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***. The **County-level Stakeholder Assessments** contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area- Diffuse, Wildlife movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-identifying-corridors/.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***. The **Detailed Wildlife Connectivity Assessments** represent ideal connections within or between intact blocks or core habitats. The blocks are currently disconnected or isolated and the linkages should be examined for improving permeability, or are currently intact and in need of preservation and/or enhancement. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://www.azgfd.com/wildlife/planning/habitatconnectivity/identifying-corridors/
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

The analysis has detected one or more **Important Bird Areas** within your project vicinity. Please see http://aziba.org/?page_id=38 for details about the Important Bird Area(s) identified in the report.

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https://www.fws.gov/office/arizona-ecological-services or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that **Peregrine Falcons** have been documented within the vicinity of your project area. Please review the Peregrine Falcon Management Guidelines at: https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/peregrineFalconConservGuidelines.pdf.

HDMS records indicate that **Sonoran Desert Tortoise** have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf.

APPENDIX E

Tribal Scoping Outreach Letter

USDA United States Department of Agriculture | Forest Service | Coronado National Forest Supervisor's Office

300 West Congress St.
Tucson, AZ 85701
520-388-8300
Fax: 520-388-8305

File Code: 1560
Date: September 25, 2023

Mr. Ramon Riley
Cultural Resource/NAGPRA/Rep.
White Mountain Apache Tribe Nowike' Bagowah Museum
P.O. Box #507
Fort Apache, 85926

Dear Mr. Riley:

The Coronado National Forest, Nogales Ranger District, in cooperation with U.S. Customs and Border Protection (CBP) invites your participation in the scoping process to understand your concerns, questions, and suggestions regarding the Holden Canyon Connector Road Project, which proposes to improve, repair, and construct approximately 12.62 miles of unpaved road as well as decommission approximately 3.94 miles of unpaved roads in Pima and Santa Cruz counties, Arizona. The purpose of this letter is to inform interested and affected parties of the proposed actions and to announce an opportunity to comment during a 30-day scoping period. We also recommend your input regarding potential effects to cultural resources, including Traditional Cultural Properties, pursuant to Section 106 of the National Historic Preservation Act, among other related laws and regulations.

Tierra Right-of-Way Services, Ltd. completed cultural resources survey of the areas of potential effects and documented the results of their 205-acre survey in a report that is being enclosed with this letter to your Tribal Nation's Tribal Historic Preservation Officer/cultural resources staff (Coronado National Forest Report No. 2023-05-089). The report includes several recommendations to minimize effects to historic properties. The project is anticipated to result in no adverse effects to historic properties, although additional survey is recommended to address potential effects to one historical site.

The proposed project will undergo environmental review in accordance with the National Environmental Policy Act (40 Code of Federal Regulations [CFR] 1501.7). The Nogales Ranger District in cooperation with CBP is currently preparing an environmental analysis of the proposal. Maps and other project-related information can be accessed on the agency project webpages at: https://www.fs.usda.gov/project/?project=64326 or https://www.cbp.gov/about/environmental-management under "Documents Ready for Comment".

Comments received in response to this solicitation will be used to identify potential environmental issues related to the proposed project and to identify alternatives to the proposed project that meet the purpose and need for the project. The proposed project is an activity implementing a land management plan and is subject to the pre-decisional objection process at 36 CFR 218 Subparts A and B. Information on how you can comment on this proposal or obtain further information is provided below.

PROJECT LOCATION:

The proposed project area is located within the Tumacacori Ecosystem Management Area of the Nogales Ranger District in Santa Cruz and Pima counties, Arizona. The proposed Holden Canyon Connector Road is approximately 12.62 miles located within Township 23S Range 10E: Sections 03, 04, 05, 07 ,08, 09, 10, 15, 16, 22, 23, 24, and 25, and Township 23S Range 11E: Section 30, Gila-Salt River Meridian. The proposed decommissioned road segments are located within Township 23S Range 10E: Sections 08, 09, 15, 16, 17, 12, 22, 23, 25, and 26, and Township 23S Range 11E: Sections 30 and 32, Gila-Salt River Meridian.

PURPOSE AND NEED:

In 2006, the U.S. Department of Agriculture (USDA), including the U.S. Forest Service (USFS), signed a memorandum of understanding (MOU; available on the agency project webpages referenced above) with the Department of Homeland Security (DHS), including the CBP. The DHS, through its constituent bureaus (including CBP), is statutorily mandated to control and guard the nation's borders and boundaries, including the entirety of the northern and southern land and water borders of the United States. The USDA, through its constituent bureaus (including USFS), is statutorily charged as a manager of Federal lands throughout the United States, including USDA lands in the vicinity of international borders that are administered as wilderness areas, conservation areas, national forests, or wildlife refuges.

In the 2006 MOU, the USDA recognizes that, pursuant to applicable law, CBP is authorized to access the Federal lands under USDA administrative jurisdiction and will do so in accordance with existing authorities. CBP may request, in writing, that the land management agency authorize installation or construction of tactical infrastructure for detection of cross-border violators (CBVs), including roads, on USDA-administered land to interdict CBVs as close to the United States' international borders, in accordance with the Border Patrol Strategic Plan. The 2006 MOU states that CBP will cooperate with USDA to identify routes and coordinate the placement of tactical infrastructure to limit resource damages while maintaining operational efficiency.

The Holden Canyon Connector Road project would connect the area between Holden Canyon and Warsaw Canyon, near the United States-Mexico International Border. This area is approximately 10 miles southeast of the town of Arivaca, Arizona, and is only accessible from the north by two main access National Forest System (NFS) roads. Currently, there are no available east/west roads that connect the two canyon areas. The limited east/west road access north of the border in the Holden Canyon area has constrained agents' abilities to respond to this area safely and efficiently. To access the eastern portion of the Holden Canyon area from the west, CBP agents must drive north on Tres Bellotas Road (FR216), south on Ruby Road, and south on California Gulch Road (FR217), approximately 24 miles that typically takes approximately 60 minutes to complete. From California Gulch Road, agents may need to continue by foot to patrol the area. This extended response time requires additional resources, additional manpower hours, and hampers agent effectiveness as they are delayed.

The few uneven, difficult-to-maintain, unpaved, ranch roads in the area have made CBV detection, response, and resolution extremely difficult. The purpose of this project is to improve

mobility and accessibility for CBP agents responding to and seeking to prevent illegal cross-border traffic, address emergencies involving human health and safety, and prevent or minimize environmental damage arising from occurrence of and response to CBV illegal entry on public lands.

The improvement, construction, and repair of these 12.62 miles of road that would connect Holden Canyon and Warsaw Canyon east-to-west also addresses objectives, standards, guidelines, and desired conditions within the 2018 Coronado National Forest Land and Resource Management Plan (Forest Plan) related to international border security, recreation and emergency access, and resource protections. Recreational uses that are likely to occur in the proposed project area include hunting, all-terrain vehicle use, and wildlife viewing. The proposed road would also provide the USFS with improved access and response times when called upon to respond to fire and rescue events in the rugged canyon terrain of this roaded backcountry area. The proposed road would help to improve rancher relations as it would limit the CBP's need to traverse areas further north and allow them to dedicate their efforts to the border area. The decommissioning of 3.94 miles of road would offset the 3.72 miles of new road construction and reduce CBP and public access into areas with sensitive resources.

PROPOSED PROJECT:

Under the proposed project, the CBP Tucson Sector, in cooperation with the USFS Coronado National Forest, proposes to improve, repair, and construct approximately 12.62 miles of road to provide enhanced access for U.S. Border Patrol activities in the Holden Canyon area (see map on agency project webpages referenced above). The proposed project also includes decommissioning of approximately 3.94 miles of road segments no longer needed for patrol and access in the vicinity of the Holden Canyon area and the international border.

Holden Canyon Access Road

The 12.62-mile road would consist of the following:

- Improvement and repair of approximately 8.90 miles of Mojonera Canyon Road (FR 216A), Saucito Tank Road (FR 4167), and currently decommissioned road and trail segments (closed road and trail segments would require significant improvement).
- New road construction of approximately 3.72 miles of an undeveloped area.

The proposed road would be native surfaced (constructed of on-site soil materials), engineered to conform to the USFS Maintenance Level 2 Standard, and be suitable for high-clearance vehicles.

The road would be approximately 10 to 12 feet wide in most areas. In areas requiring road switchbacks, a wider road area may be needed, and slopes may require reinforcement. Potential ground disturbance for the proposed road improvement areas (within existing or closed roads) would be approximately 6.21 acres and ground disturbance for new road construction areas would total approximately 33.45 acres (calculations assumed a 14-foot-wide road). Final design of the road would determine road widths and shoulder reinforcements needed. The new road through Holden Canyon would be designated as open to public motor vehicle access. The proposed road would generally have low patrol traffic volume (two or three patrol agents per

day) with low-speed use and low public use volume (hunters and all-terrain vehicle use primarily) with low-speed use.

Road dips and cross drains would be the preferred drainage treatments. Within low water crossings, drainage features such as concrete mats or corrugated metal pipes may be required. Final road design would determine locations of low water crossings and drainage features needed.

Equipment staging areas would be located within existing road or disturbed areas. Equipment needed to improve and construct the proposed road would include trackhoes, bulldozers, dump trucks, graders, compactors, loaders, and similar heavy equipment. A water tender would also be used for compaction of the road surface and dust abatement during construction.

Access to the area would be via existing roads and no temporary roads would be necessary for project implementation. Maintenance of the proposed road would be on an "as-needed" basis or in the event of emergency situations that require repair. CBP would fund the road improvements, construction, and maintenance. The USFS would be responsible for final design and construction.

Proposed Road Decommissioning

CBP proposes to decommission 20 existing unimproved road segments within the Coronado National Forest, totaling 3.94 miles to offset the proposed approximately 3.72 miles of new road construction for access to Holden Canyon. The USFS requirement for the proposed road decommissioning would include barricading the roadway to prevent motorized vehicle travel onto the roadway. Barricades would include either fencing or boulders across the roadway and several feet beyond the road edge to prevent access around the barrier. The roadway surface would be tilled and seeded along areas visible from decommissioned road end points. Decommissioning of these roads would contribute to the reduction of vehicle noise and impacts to sensitive resources, and increase the opportunities for quiet recreation, as emphasized in the Forest Plan.

IMPLEMENTATION TIMELINE:

The timeline for proposed Holden Canyon Connector Road improvement, repair, and construction, as well as road decommissioning, would be approximately five months over the winter season (October 1 through March 30).

RESOURCES IDENTIFIED FOR ANALYSIS:

Issues identified for analysis in the Environmental Assessment include the following:

- Air Quality
- Climate Change/Greenhouse Gases
- Cultural Resources
- Fire and Fuels
- Range Resources
- Recreation
- Scenery

- Soils
- Vegetation/Botanical Resources
- Watershed
- Wildlife

DECISION TO BE MADE:

The Nogales District Ranger is the Responsible Official for the USFS decision. The Executive Director of the Program Management Office Directorate, U.S. Border Patrol (USBP) and the Deputy Director, Facilities Management and Engineering, Office of Facilities and Asset Management, U.S. Customs and Border Patrol (CBP) are the Responsible Officials for this CBP decision. Based on the results of the environmental analysis, the USFS Nogales District Ranger and CBP would issue decision documents that include a determination of the significance of the environmental effects and whether an Environmental Impact Statement would be prepared. The decisions would also include a determination of consistency with the Forest Plan, National Forest Management Act, National Environmental Policy Act and applicable laws, regulations, and executive orders.

If the Nogales District Ranger determines it is not necessary to prepare an Environmental Impact Statement, the Nogales District Ranger would decide whether to authorize the proposed Holden Canyon Connector Road project. If the Nogales District Ranger authorizes the proposed Holden Canyon Connector Road project, the Ranger would determine which management actions, mitigation measures, and monitoring requirements would be prescribed. Draft Avoidance and Minimization Measures are available on the agency project webpages referenced above.

HOW TO COMMENT:

The Coronado National Forest and CBP value public input on the proposed project and the scope of this environmental review. We are now inviting you to submit comments during the scoping period. This scoping period is intended to provide interested and affected parties with an opportunity to provide input to inform the decision being made by the Responsible Officials. Specifically, we would like to invite your comments regarding issues, opportunities, concerns, and/or suggestions for the proposed project.

Please make your comments as specific as possible. If you provide recommendations for changes to the Proposed Action, please include the reasons for your recommendations. This information will help us identify the need for alternatives. Comments should be within the scope of the Proposed Action, have a direct relationship to the Proposed Action, and must include supporting reasons for the Responsible Officials to consider (36 CFR 218.2).

Specific written comments on the proposed project will be accepted for **30 calendar days** following publication of the legal notice in the *Nogales International*, the newspaper of record. If the comment period ends on a Saturday, Sunday, or Federal holiday, comments will be accepted until the end of the next Federal working day. The publication date in the newspaper of record is the exclusive means for calculating the comment period. Additional time may be requested for Section 106 consultation, as needed. Those wishing to comment should not rely upon dates or timeframe information provided by any other source.

Specific written comments or requests for additional information must be submitted via mail or in person (Monday through Friday, 8:00 a.m. to 4:30 p.m., excluding holidays) by U.S. mail:

Proposed Holden Canyon Connector Road c/o Michelle Barnes,
U.S. Customs and Border Protection, U.S. Border Patrol Headquarters,
1300 Pennsylvania Avenue, 6.5E Mailstop 1039
Washington, DC 20229-1100

Electronic comments including attachments should be submitted using the USFS Public Comment Form at https://cara.fs2c.usda.gov/Public//CommentInput?Project=64326 or submitted to CBP at holdencanyonconnectorroad@cbp.dhs.gov .

Only individuals or entities (as defined by 36 CFR 218.2) who submit timely and specific written comments (as defined by 36 CFR 218.2) about this proposed project or activity during this or another public comment period established by the Responsible Official will be eligible to file an objection. Other requirements to be eligible to submit an objection are defined by 36 CFR 218.25(a)(3) and include name, postal address, title of the project, signature, or other verification of identity upon request, and the identity of the individual or entity who authored the comments. Individual members of an entity must submit their own individual comments in order to have eligibility to object as an individual. A timely submission will be determined as outlined in 36 CFR 218.25(a)(4).

It is the responsibility of the sender to ensure timely receipt of any comments submitted. Names and contact information submitted with comments will become part of the public record and may be released under the Freedom of Information Act.

We appreciate the time and effort spent by you and your staff reviewing this project on the Coronado National Forest. We welcome your input and are available to answer any questions (please contact Heritage Program Manager David Mehalic at david.mehalic@usda.gov or 520-388-8395 or Tribal Relations Program Manager Doreen Ethelbah-Gatewood at Doreen.ethelbah-gatewood@usda.gov).

Thank you for your input and continued interest in projects on Coronado National Forest.

Sincerely,

KERWIN S. DEWBERRY
Forest Supervisor

Enclosure