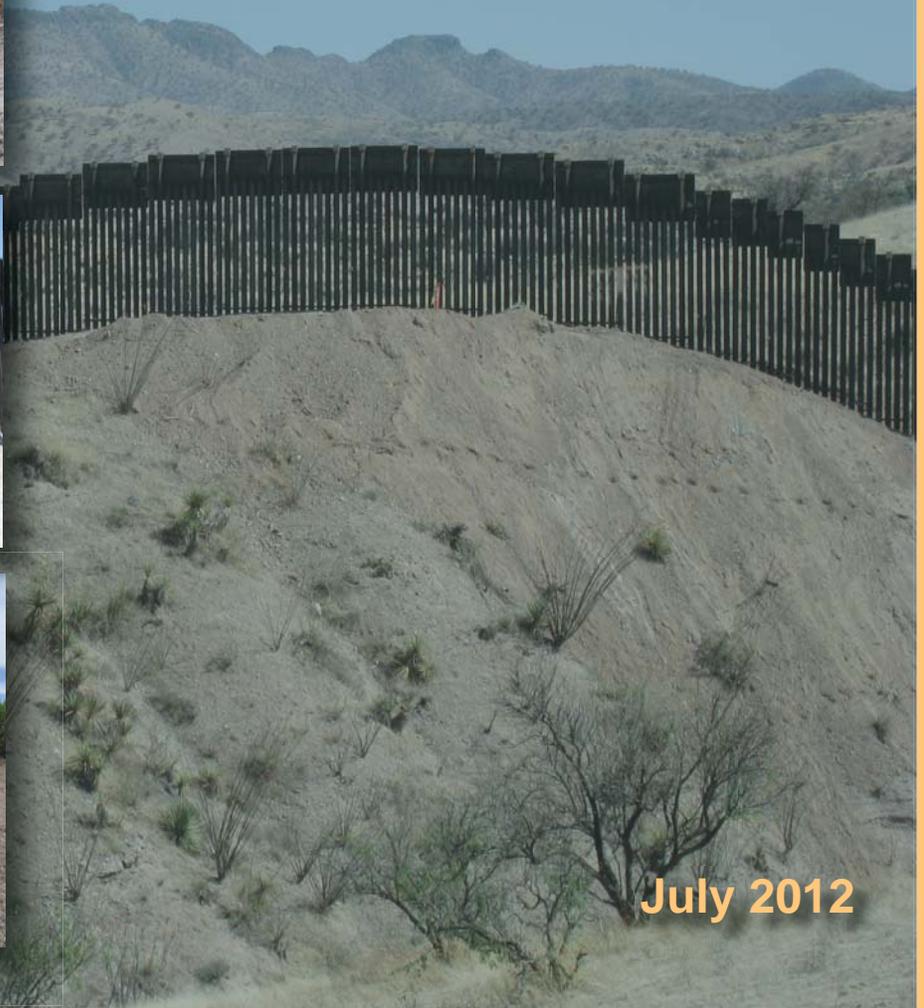




ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT

OF THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE PEDESTRIAN FENCE SEGMENTS D-5B, D-6, AND E-2A U.S. Border Patrol Tucson Sector, Arizona

U.S. Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol



July 2012

**ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT
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OF TACTICAL INFRASTRUCTURE
PEDESTRIAN FENCE SEGMENTS D-5B, D-6, AND E-2A
U.S. BORDER PATROL, TUCSON SECTOR,
ARIZONA**

July 2012

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EXECUTIVE SUMMARY

The U.S. Customs and Border Protection (CBP) Secure Border Initiative (SBI) built tactical infrastructure (TI) for the U.S. Border Patrol (USBP), Tucson Sector. USBP uses the term TI to describe the physical structures that facilitate enforcement activities; these items typically include, but are not limited to, roads, vehicle and pedestrian fences, lights, gates, and boat ramps. TI to be built under SBI's Pedestrian Fence 225 (PF 225) Program within the Tucson Sector consisted of pedestrian fence, vehicle fence as necessary, and adjacent patrol/maintenance roads, in three separate segments. The first two segments, which are designated as D-5B and D-6, are along the U.S./Mexico international border in Santa Cruz County, Arizona. The third segment is designated E-2A and is in Cochise County, Arizona. A total of 13.84 miles of primary pedestrian and vehicle fence were originally planned to be built within these three segments; however, 13.88 miles were installed.

The purpose of this report is to comprehensively summarize the installation of TI and assess the final design and footprint of the TI. This Environmental Stewardship Summary Report (ESSR) compares the final completed action to the originally planned installation of TI, as proposed in the August 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Tucson Sector, Nogales Station, Arizona* for segments D-5B and D-6 and in the May 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Tucson Sector, Naco Station, Arizona* for segment E-2A. Segments D-5B and D-6 were built between September 2, 2008 and December 30, 2008. Construction of Segment E-2A occurred between July 8 and December 31, 2008.

CBP provided environmental monitors during construction activities, who documented adherence to best management practices (BMPs). Monitors noted any deviations from the BMPs, as well as required corrections, in weekly monitoring reports and on a BMP tracking spreadsheet. The most common deviations from the established BMPs in the Tucson Sector included insufficient perimeter flagging and resulting out-of-bounds activity; widening of existing roadbed due to improper maintenance and use; trash and construction waste; concrete-related issues; open trenches without proper escape ramps for trapped animals; and lack of drip pans underneath stored equipment. A lack of sufficient erosion control was another frequent, but less common, infraction. At the close of construction activities, most infractions had been fully resolved. However, a few infractions remained unaddressed as of the final walk-through for D-5B and D-6. Large areas of exposed soil were present throughout the project corridor and additional contouring or permanent erosion control devices were needed in some locations to prevent future erosion. The continued lack of sufficient erosion control for D-5B and D-6 poses a potential threat to federally listed Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) habitat. No additional impacts on cultural resources were noted.

After the completion of the Environmental Stewardship Plan (ESP), changes were made to the alignment, design, or construction methods to facilitate construction, reduce costs or potential impacts, respond to stakeholder requests, or enhance the efficacy of the fence for enforcement. These changes were reviewed and approved through CBP Headquarters and documented in

change request (CR) forms. This report also summarizes any significant modifications during construction that increased or reduced environmental impacts.

This ESSR was prepared to document the impact areas, compared with the original ESPs and the changes identified in the CR forms, for the following reasons:

1. To compare anticipated to actual impacts, so that a final new baseline is established for future maintenance and repair and any potential future actions.
2. To document success of BMPs and any changes or improvements for the future.
3. To document any changes to the planned location or type of the TI.

CBP consultants surveyed the D-5B, D-6, and E-2A sites to inspect the final project corridor and infrastructure footprints. Consultants surveyed for any significant differences between the planned and completed actions. When changes were noted, the surveyors checked the CR forms to see if the changes had been recorded and approved. A total of seven CR forms were approved during the construction of the D-5B and D-6 segments. Only four modifications had the potential to affect the construction footprint and, thus, to change environmental impacts. Seven CR forms were also approved during the construction of the E-2A segment. Many of the changes in the E-2A segment occurred before the final publication of the final ESP in July 2008.

For the D-5B and D-6 project corridor, the post-construction surveys indicated that the fence extended 178 feet beyond the original corridor on the western section but was 78 feet shorter on the eastern section than described in the ESP. Although the actual and planned mileage differed, the difference was small and did not require a CR form. Such differences are normal and to be expected during construction projects like this. The overall total impact area due to the fence and maintenance road construction was significantly smaller than estimated in the ESP, reducing the permanent impact area by 71 acres. The project footprint for the staging areas was also significantly smaller than anticipated, reducing the total temporary impact area by about 12 acres. Four staging areas were used, but two of them were located in different areas than originally planned. The modifications and their impacts are summarized in Table ES-1. As this table indicates, the total reduction in permanent and temporary impact area was nearly 83 acres.

Table ES-1. Summary of Area Affected by D-5B, D-6, and E-2A Construction Modifications

Office of Border Patrol action	ESP estimated impact (acres)	Post-construction survey (acres)	Difference (acres)
D-5B and D-6 fence and road	112	50.4	-61.6
E-2A fence and road	54	38.2	-15.8
Staging areas	28	15.7	-12.3
Access roads	6.5	13.2	6.7
Turnaround site	0	0.03	0.03
Total Impacts	200.5	117.5	-82.97

The greatest increase in impact not evaluated in the ESP occurred during construction of a new access road realignment required for circumventing a cultural resources site. In addition, six other small deviations in road alignments were required. The new access road, which was approved by two CRs, and the realignments increased the impact by 6.7 acres.

The E-2A project corridor was modified as well. The impact area along the entire 6.29 miles of fence was 50 feet wide or less, amounting to a reduction of 7.2 acres for the entire fence corridor, including a 1.3-acre reduction to the project footprint within the Coronado National Memorial. Another modification involved installing post-on-rail fence for 0.22 mile on the western end of the project corridor, which was approved in a CR. A turnaround site on the western terminus of E-2A extended beyond the project corridor and created an additional 0.03 acre of permanent impacts. Also, the post-on-rail vehicle fence on the western end of the project corridor was 60 feet longer than described in the ESP. Although the actual mileage was different from the planned mileage, the difference was small and did not require a CR form. Such differences are normal and to be expected as the final measurements are taken.

A new access road from Coronado National Monument Road to the project corridor was built 14 feet wider than originally planned, adding 2.27 acres of temporary disturbance. This alteration was authorized in a CR. The permanent width of the access road was later reduced to 16 feet as described in the ESP. The ESP also anticipated a bypass road around the San Pedro River, but it was never completed. Instead, USBP agents and contractors used existing roads to circumvent the San Pedro River.

The staging area for E-2A was originally planned to encompass 2.0 acres; however, the staging area encompassed 7.8 acres, an increase of 5.8 acres. Expansion of the staging area was not approved by a CR. Four gates were installed into the pedestrian fence for access to the south side of the fence to control fires and maintain border monuments. In addition, to assist conveyance of floodwater, removable panels were installed within large washes that cross the U.S./Mexico international border; these panels will be removed during each monsoon season and replaced after floodwaters recede. These gates were not in the original design specifications for E-2A, but their installation was approved in a CR.

A decrease in the impact on agave (*Agave palmeri*) plants was observed for the E-2A project corridor. The ESP for E-2A predicted that construction activities could impact approximately 3,700 agave plants and committed that 1,500 would be salvaged and transplanted. However, construction activities affected only 2,087 agave plants, and 1,546 were salvaged and transplanted. Additionally, seeds were collected from 50 agave plants from multiple locations throughout the project corridor; they were delivered to the Coronado National Monument Natural Resources Manager for future agave planting efforts within the park boundaries.

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SECTION 1.0
INTRODUCTION, OUTREACH, AND METHODS



1.0 INTRODUCTION AND METHODS

As part of an effort to document the installation of tactical infrastructure (TI) under the Pedestrian Fence 225 (PF 225) program, this Environmental Stewardship Summary Report (ESSR) presents a compilation of construction actions. It compares the final results of the construction projects with the planned action proposed in the August 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Tucson Sector, Nogales Station, Arizona* and the May 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Tucson Sector, Naco Station, Arizona*. Biological Resources Plans (BRPs) to identify the presence of sensitive biological resources, particularly federally protected species, and potential impacts on these resources were prepared. The BRPs were provided to affected resource agencies and land managers for review. The BRPs were appended, where appropriate, to the Environmental Stewardship Plans (ESPs). The original ESPs were made available to the public on the U.S. Custom and Border Protection (CBP) website www.borderfenceplanning.com, which has subsequently been changed to http://cbp.gov/xp/cgov/border_security/ti/ti_docs/sector/tucson/. Information in this ESSR came from environmental summary reports, approved modifications made during construction, and post-construction surveys of the project corridor. This ESSR compares anticipated with actual impacts in three segments, designated as D-5B, D-6, and E-2A (Figure 1-1).

Before installing TI, CBP performed an environmental review of the fencing projects and published the results in ESPs, including mitigation and best management practices (BMP) to minimize harm to the environment. CBP drafted ESPs for each TI segment under the waiver. Some ESPs addressed specific TI segments, while others, such as for the Tucson Sector, addressed all of the PF 225 segments planned for the sector in a single document. Professional biologists and archaeologists conducted field surveys of all project corridors during the planning process before construction. The results of the surveys were provided to the affected resource agencies (such as the U.S. Fish and Wildlife Service [USFWS] and State Historic Preservation Offices) for review and comment. Conservation measures and other BMPs identified in the ESP were made part of the Request for Proposal (RFP) issued to commercial construction contractors and incorporated into the contract upon award.

This ESSR was prepared to document the actual impact areas, compared with the original ESPs and the changes identified in the CR forms, for the following reasons:

1. To compare anticipated to actual impacts, so that a final new baseline is established for future maintenance and repair and any potential future actions.
2. To document the success of BMPs and any changes or improvements for the future.
3. To document any changes to the planned location or type of the TI.

1.1 PUBLIC AND AGENCY OUTREACH

Before developing the D-5B and D-6 ESP, CBP prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) to address the potential effects of the planned action. A Notice of Availability (NOA) for the draft EA and FONSI was published in

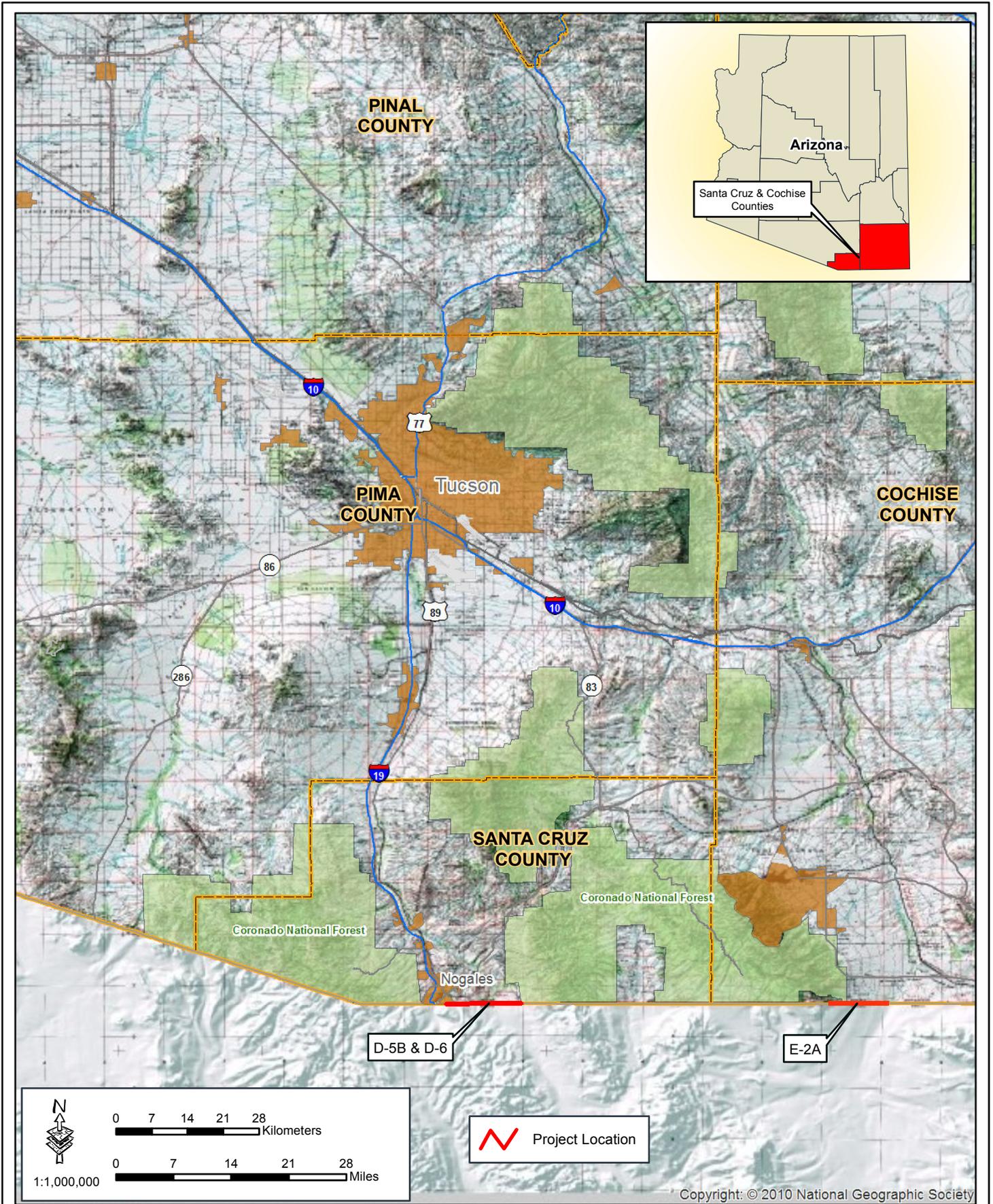


Figure 1-1: Vicinity Map

the *Arizona Daily Star* on January 18 and 23, 2008, announcing the release of documents for a 30-day public comment period. In addition, a public meeting for the draft EA and FONSI was conducted in Tucson on January 31, 2008.

After the Secretary of Homeland Security waived compliance with certain environmental laws and requirements in April 2008, CBP reviewed, considered, and incorporated comments received on the draft EA and FONSI from the public and other Federal, state, and local agencies, as appropriate, in preparing the ESP. Results of public and agency coordination efforts for the draft EA and FONSI were addressed and incorporated into the ESP and posted for the public.

A public meeting was also conducted for the draft E-2A ESP in Sierra Vista on May 13, 2008. CBP reviewed, considered, and incorporated comments received on the draft ESP from the public and other Federal, state, and local agencies, as appropriate, in preparing the final ESP. The NOA for the final ESP was published in the *Arizona Daily Star* and the *Sierra Vista Herald* on August 11 and 13, 2008, respectively.

In addition to the past public involvement and outreach program, CBP continued to coordinate with various Federal and state agencies while developing the ESPs and during construction. These agencies include but are not limited to the following:

U.S. Section, International Boundary and Water Commission (USIBWC) - CBP coordinated with USIBWC to ensure that any construction along the international border did not harm international boundary monuments or substantially impede floodwaters within international drainages.

U.S. Army Corps of Engineers (USACE), Los Angeles District - CBP coordinated all activities with USACE to identify potential jurisdictional Waters of the U.S., including wetlands, and to develop measures to avoid, minimize, or compensate for losses to these resources.

U.S. Fish and Wildlife Service - CBP coordinated with USFWS to identify listed species that could inhabit the project area, identify potential effects on listed species, and develop BMPs.

U.S. Department of the Interior (DOI) - CBP has continued to coordinate with DOI and its bureaus throughout the southwest border, including the USFWS, U.S. Bureau of Land Management (BLM), U.S. Bureau of Indian Affairs (BIA), and U.S. Bureau of Reclamation.

U.S. Department of Agriculture (USDA) - CBP has continued to coordinate with the USDA, U.S. Forest Service (USFS), Coronado National Forest (CNF), since this action involves CNF lands.

1.2 METHODS

1.2.1 Environmental Monitoring Process

CBP provided an environmental monitor during construction activity. Duties of the designated environmental monitor included documenting impacts that occurred beyond those described in the ESP, advising on-site construction managers about implementing the BMPs and about other

environmental issues as they arose, and ensuring that managers implemented the appropriate BMPs. Environmental monitors recorded observations daily and compiled weekly reports, which they submitted to CBP and the USACE. Following completion of construction, they compiled a monitoring summary report.

The designated environmental monitor was to notify the construction manager of any activities that could harm or harass a federally listed species or of any other environmental issues. Upon such notification, the construction manager was to temporarily suspend activities in the vicinity of the federally listed species and notify the contracting officer, the administrative contracting officer, and the contracting officer's representative of the suspension so that the key USACE personnel could be notified and apprised of the situation for resolution. CBP maintained open coordination with USFWS during construction to discuss implementation and effectiveness of BMPs to avoid federally listed species.

1.2.2 Change Request Process

During construction, CBP identified potential modifications that could improve the effectiveness of the TI; reduce construction costs, schedules, or environmental impacts; enhance long-term maintenance requirements; address stakeholder concerns; or reduce risk to U.S. Border Patrol (USBP) agents' health and safety. These changes were reviewed and approved through CBP Headquarters, and documented in change request (CR) forms. Each CR form described the proposed change or modification, gave justification for the change, anticipated effects on construction costs and schedule, and identified any other extenuating circumstances that would help to clarify the change. Each proposed change was carefully vetted across CBP to evaluate potential impacts before final CBP Headquarters approval.

1.2.3 Post-Construction Survey Methods

The objective of the post-construction survey was to locate, identify, photograph, and record the installation of the TI, including types of fences and widths of access roads and project corridors. In addition, the surveys recorded biological communities, wetlands, and other environmental conditions in and adjacent to the project corridors. Surveys also recorded any other observed unusual conditions (such as fence failure, significant erosion, hazardous waste, or construction debris).

Before the field surveys, CBP produced maps of the project corridors as described in the ESPs. The ESPs were reviewed for the description of locations and types of fence to be installed, locations and widths of access and maintenance areas, and locations and sizes of staging areas. Approved CR forms were also produced and used in the field to document approved changes. Surveyors examined the entire D-5B, D-6, and E-2A project corridors and recorded the centerlines, lengths, and widths of construction and access road alignments using a Trimble Global Positioning System (GPS). Surveyors took periodic GPS coordinates of the temporary and permanent construction footprints, especially when the corridors appeared to be expanded or reduced. They also recorded the perimeters of staging areas using GPS, as well as the start and stop coordinates for various fence types.

SECTION 2.0
DESCRIPTION OF THE PLANNED ACTION



2.0 DESCRIPTION OF THE PLANNED ACTION

The ESPs addressed the construction, maintenance, and operation of 13.83 miles of TI in the USBP Tucson Sector along the U.S./Mexico international border in Santa Cruz and Cochise counties, Arizona. The planned action comprised three different segments, designated as D-5B, D-6, and E-2A. The project corridor for the D-5B and D-6 segments, located in Santa Cruz County, begins approximately one mile east of the DeConcini Port of Entry (POE) and extends eastward for 7.6 miles (Figure 2-1). In Cochise County, the E-2A segment begins on the western edge of the San Pedro River and extends 6.23 miles westward into the U.S. National Park Service (NPS) Coronado National Memorial (Figure 2-2).

Maintenance will include removing any debris accumulated on the fence after rain to avoid potential future flooding. It is anticipated that the Normandy-style fence placed within the washes will sufficiently allow water and debris through during storms. Following storms, the washes will be patrolled for large debris, and the debris will be removed. Normandy-style fence was securely anchored to the bottom and sides of washes. Sand that builds up against the fence and brush near the fence will also be removed, as needed. Brush removal could include mowing, removal of small trees, and application of U.S. Environmental Protection Agency (USEPA) and USDA-approved herbicide, if needed. Any destruction or breaches of the fence will be repaired, as needed. Additionally, access roads will be maintained or potentially upgraded to ensure year-round access for fence maintenance. Access road maintenance activities could include the periodic grading or repairing of eroded areas.

The following paragraphs describe the TI in more detail.

2.1 SEGMENTS D-5B AND D-6

The analysis presented in the ESP anticipated that the D-5B and D-6 TI would include approximately 7.6 miles in the USBP Nogales Station Area of Operation (AO). Segment D-5B would start approximately one mile east of the DeConcini POE and extend 5.2 miles eastward. Segment D-6 would extend another 2.4 miles eastward and include both primary bollard-style pedestrian fencing and Normandy-style vehicle fencing within the Santa Cruz River floodplain. The bollard-style fencing would be modified at known drainage crossings to allow the natural flow of water across the border. A Normandy-style vehicle fence would be installed within the floodplain of the Santa Cruz River, so that it could be removed before each monsoon season and replaced shortly after flood flows subside. Previously installed temporary vehicle barrier (TVB) fence within the project corridor would be removed and either dismantled and recycled or placed in other border areas.

Additionally, a road would be built adjacent to the U.S./Mexico international border to allow installation and future maintenance of the fence, as well as for patrols and other operations. The construction footprint of this road would encompass a 60- to 70-foot-wide corridor. In order to facilitate operation of equipment, staging of materials, and construction access to the project corridor, four temporary staging areas totaling 26 acres and three existing access roads would be used. In addition, a new road was planned to connect USFS Road 4903 to the U.S./Mexico international border, near the eastern end of the D-6 project corridor. The new road would be

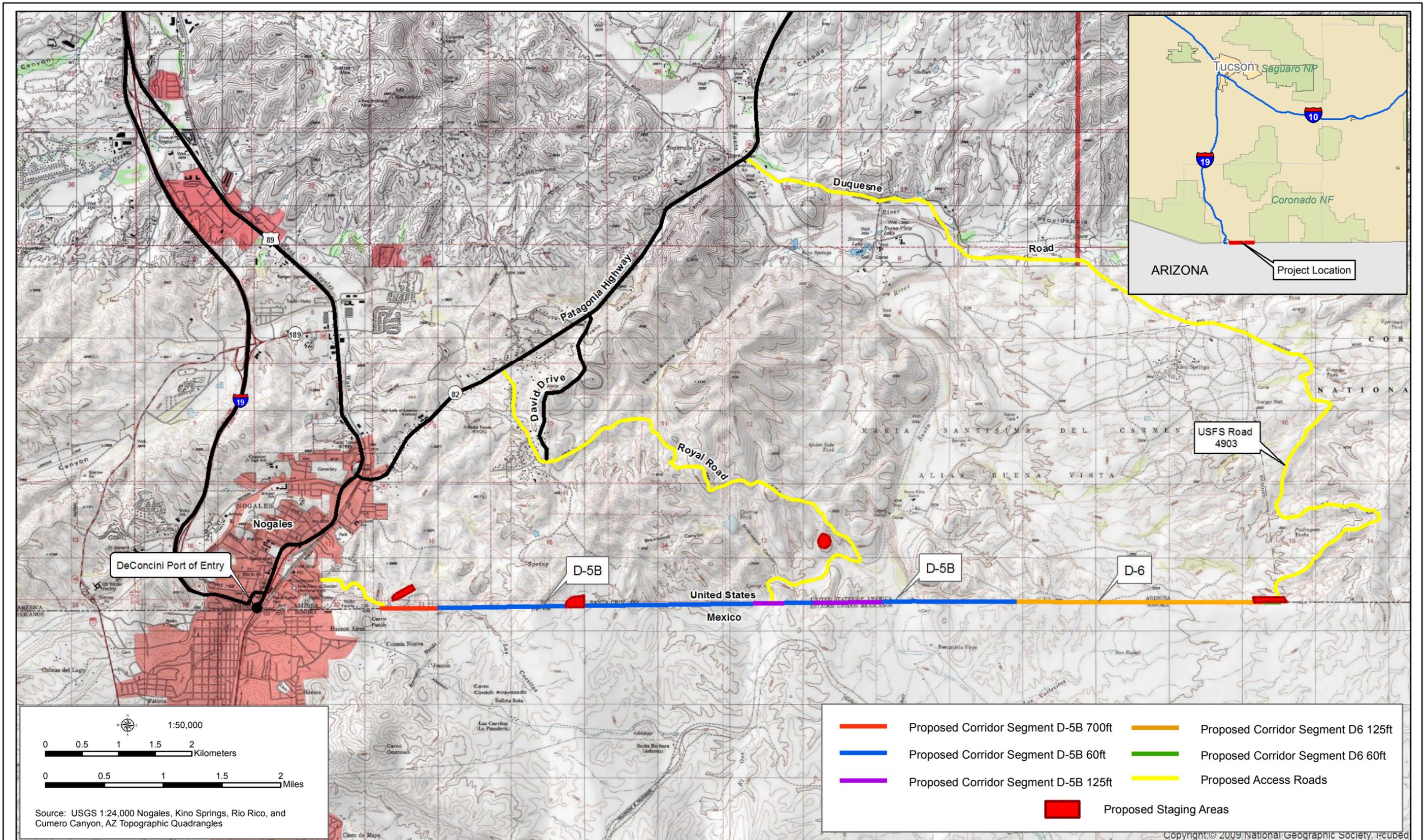


Figure 2-1: D-5B and D-6 Project Location

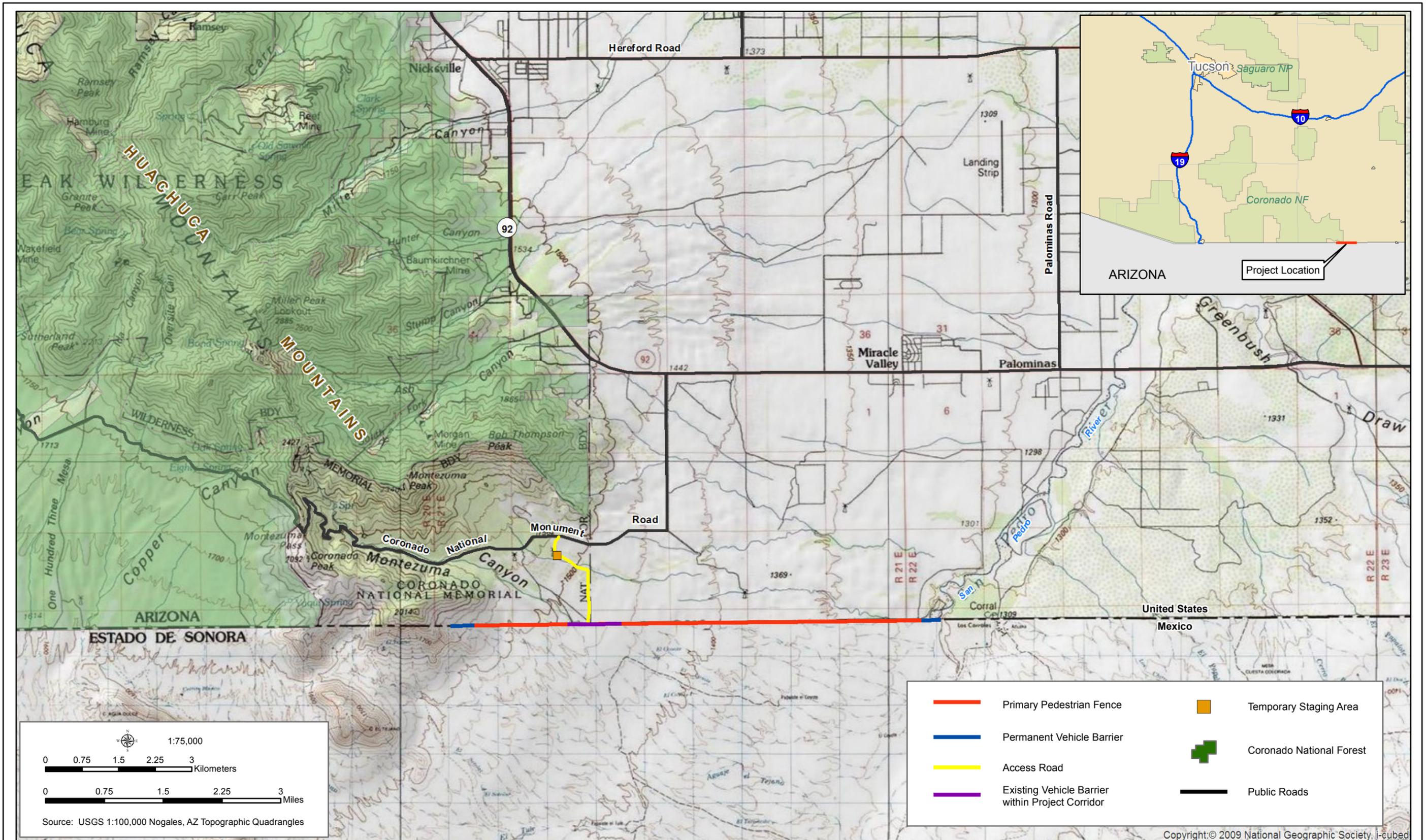


Figure 2-2: E-2A Project Location

approximately 1.34 miles long. Figure 2-1 presents the location of D-5B and D-6 fence, access roads, and staging areas as described in the original D-5B and D-6 ESP.

2.2 SEGMENT E-2A

The planned action for E-2A consisted of a project corridor 6.24 miles long and 60 feet wide, except at major drainages. The width was expanded at these locations to 250 feet to allow adequate room for construction. The remaining TI was to be installed within the Roosevelt Reservation¹ and would consist of a fence and adjacent access roads. The TI was planned to consist of 5.75 miles of bollard pedestrian fence and 0.49 mile of Normandy-style vehicle fence. The Normandy-style vehicle fence would be installed on the eastern (0.18 mile) and western (0.31 mile) terminus of the project corridor. A new access road was also planned from the Coronado National Monument Road to the project corridor. The access road was originally planned to be 16 feet wide and 1.3 miles long.

The staging area planned as part of the ESP was to be located within the Montezuma Ranch or NPS land. This staging area was to be approximately 300 feet by 300 feet (2 acres). See Figure 2-2 for the planned location of the E-2A fence, access road, and staging area as described in the E-2A ESP.

2.3 MONITORING

Unexpected field conditions required practical changes to the planned action during construction. In these situations, CBP conducted the appropriate field surveys to document the environmental impacts that these changes could have. CBP further coordinated with stakeholders to develop BMPs for changes to the construction footprint. In Segments D-5B and D-6, BMPs included installing eight cattle guards along the access roads and building a new connector access road at USFS Road 4667 in order to avoid delays during a collection of archaeological artifacts at a site that straddles USFS Road 4667. The new roadway circumvented the archaeological site and blocked the existing road, which helped to preserve the site in place.

The most common deviation from the established BMPs recorded by environmental monitors in the Tucson Sector included insufficient perimeter flagging and consequent out-of-bounds activity; trash and construction waste; concrete-related issues; open trenches without proper escape ramps for trapped animals; and lack of drip pans underneath stored equipment. A lack of sufficient erosion control was another frequent, but less common, infraction. The continued lack of sufficient erosion control for D-5B and D-6 poses a potential threat to habitat for federally listed Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*).

¹ The Roosevelt Reservation is a 60-foot-wide corridor that parallels most of the southwestern land border. It was set aside in 1907 by President Roosevelt as a border enforcement zone. A 2006 Memorandum of Understanding (MOU) among CBP and the U.S. Departments of Agriculture and Interior stipulates that CBP operations and TI construction within the 60-foot Roosevelt Reservation are consistent with the purpose of the Roosevelt Reservation.

2.4 CHANGE REQUEST FORMS

Seven CR forms were approved during the construction of the D-5B and D-6 segments. However, only four modifications had the potential to affect the construction footprint and, thus, change environmental impacts. Seven CR forms were also approved during the construction of the E-2A segment, and many of them occurred before the final publication of the final ESP in July 2008. Table 2-1 summarizes the project modifications for both segments determined to have the potential to change the environmental effects discussed in the project ESPs.

Table 2-1. Summary of Approved CRs with Potential to Affect the Construction Footprint

Approval Date	Summary Description	Potential Environmental Impact
Segment D-5B and D-6		
May 19, 2008	Addition of access road USFS Road 4667.	Increases project footprint
June 24, 2008	Deletion of access road Route A due to right-of-entry disputes.	Reduces project footprint
June 18, 2008	Project mileages were redefined. D-5B mileage increased from 5.16 to 5.27. D-6 mileage increased from 2.22 to 2.23.	Increases project footprint
September 18, 2008	Realignment of access road from USFS Road 4667 away from observed cultural resources.	Increases project footprint
December 9, 2008	Installation or replacement of eight cattle guards along access roads.	Increases project footprint
Segment E-2A		
May 12, 2008	Reduce the Vehicle Fence Type 1 (VF-1) at the west end of the E-2A project from 0.40 mile to 0.23 mile.	Reduces project footprint
March 24, 2008	Personnel Vehicle Type I (PV-1) fence beginning on the west side of San Pedro River, at the 100-year floodplain, extends west along the U.S./Mexico border for a distance of 5.8 miles where it transitions into VF-1 post-on-rail continuing west for 0.4 mile. The change from PV-1 to VF-1 would be at 31° 20' 01.06" N, 110° 14' 54.9" W for 0.4 mile ending at 31° 20' 01.6" N, 110° 15' 18.2" W.	VF Improves drainage in San Pedro River
June 3, 2008	Make the primary access road from the staging area going southeast to the east boundary fence of the NPS then proceed south within the NPS boundary to the border fence project location. Keep Forest Lane as an alternate access to be used by smaller vehicles.	Increases project footprint
June 18, 2008	Due to surveying and design information, project mileage changed from 6.18 to 6.06 miles.	Reduces project footprint
December 4, 2008 December 5, 2008 December 9, 2008	Salvage and relocate 788 agave cacti in addition to the 688 specified in the RFP. A total of 1,476 agave cacti to be relocated as part of the mitigation requirements for this segment, which is located within the Coronado National Memorial.	Does not change project footprint; reduces impacts

2.5 IMPACT QUANTITIES ANTICIPATED IN THE ENVIRONMENTAL STEWARDSHIP PLAN

Table 2-2 identifies the pertinent resources anticipated to be affected in the ESPs. This table is not all-inclusive, as post-construction quantities for some resource impacts (air, noise, socioeconomic) could not be measured.

Table 2-2. Anticipated Resource Impacts

Resource	Impacts*			Comment
	Permanent	Temporary	Total	
Soils	172	28	200	Soils within the staging areas will be stabilized upon completion of construction activities and allowed to naturally revegetate.
Vegetation	172	28	200	Soils within the staging areas will be stabilized upon completion of construction activities and allowed to naturally revegetate.
Cultural Resources	0 sites	—	0 sites	Six of the nine sites for D-5B and D-6 and all seven sites for E-2A are considered eligible for listing on the National Register of Historic Places. Sites will be avoided, so impacts are not anticipated.
Waters of the U.S. (WUS)	< 2	0	< 2	A total of 27 WUS in D-5B and D-6 and 21 WUS in E-2A segment.
Floodplain	3.9	0	3.9	Impacts on the floodplain are unavoidable due to its north/south orientation.

* Unless otherwise noted, all quantifications are in acres

SECTION 3.0
POST-CONSTRUCTION FINDINGS



3.0 POST-CONSTRUCTION FINDINGS

This section discusses the results of the post-construction surveys in both qualitative and quantitative terms, by construction activity. It also discusses approved CRs that necessitated any changes in the project as described in the ESP. During large construction projects it is common for minor differences between field conditions and design drawings to require small modifications. These modifications can result in increases in the length of fence sections or the footprint of roads and staging areas. Changes such as these are expected under typical construction projects. A summary of the impacts on the pertinent resources, based on these post-construction surveys, is presented at the end of this section.

3.1 RESULTS OF ROAD MEASUREMENTS

3.1.1 Access Roads

3.1.1.1 D-5B and D-6 Segment

According to the ESP, one new access road would connect USFS Road 4903 to the U.S./Mexico international border. It would be approximately 20 to 30 feet wide (including parallel ditches and shoulders) and 1.34 miles long (Photograph 3-1). The post-construction survey recorded that the new access road deviated approximately 0.36 mile from the route presented in the ESP.

Approximately 0.3 mile of new access road was built at the western terminus of D-5B, which was addressed in an approved CR. The access road was built to provide primary access to the D-5B segment from Adams Road. A CR authorized realigning a 22-foot-wide road approximately 100 to 150 feet to the south and east to avoid a cultural site discovered during construction of the new access road to the D-6 segment. The post-construction survey recorded that approximately 0.5 mile of new road was built.



Photograph 3-1. New Access Road with Culverts

Six cattle guards were installed on the access roads. This construction was not addressed in the ESP, but the change was documented in an approved CR. In addition, the ESP did not address improvement of preexisting access roads, but the survey noted that portions of the roads were regraded to smooth out eroded spots (Photograph 3-2). It also noted that culverts were installed on the new access road (see Photograph 3-1).



Photograph 3-2. Access Road Re-graded to Smooth Erosion Spots

On Royal Road, several piles of rock from grading and leveling activities were adjacent to the road in two separate locations (Photograph 3-3). The survey revealed two realignments of this road for 0.9 mile near the southern end where it connects to the fence maintenance road. There was also an 8-foot-wide disturbance where an all-terrain vehicle (ATV) trail cut through a switchback (Photograph 3-4) and one cattle guard was installed.



Photograph 3-3. Rock Piles on Side of Access Road



Photograph 3-4. ATV Cut-Through

Duquesne Road had one cattle guard installation and two deviations from the approved access road described in the ESP. The two deviations resulted in 0.6 mile of realignment, totaling 1.6 acres of disturbance. Figure 3-1 presents a map of the post-construction surveyed areas. No CR was approved for these modifications.

3.1.1.2 E-2A Segment

A new access road was built from Coronado National Monument Road to the project corridor. The access road was originally planned to be 16 feet wide and 1.3 miles long, and enter through Forest Lane; however, the entrance was changed, the route was altered, and the width of the access road was temporarily expanded to 30 feet. This temporary modification increased the footprint of the access road by 2.27 acres, but the alteration to the access road was authorized in an approved CR and the width of the access road has since been reduced to 16 feet.

Additionally, the area outside the 16-foot disturbance has been reseeded with native vegetation. Figure 3-2 presents a map of the ESP planned access road corridor and the post-construction surveyed access road. Although the ESP stated that the road would be 1.30 miles long, the survey determined that its length was 1.32 miles, thereby increasing the permanent project footprint by 0.03 acre.

3.1.2 Access Roads

3.1.2.1 D-5B and D-6 Segment

The ESP reported that an access road for D-5B and D-6 would be built on the northern side of the fence. The length of the construction footprint was expected to be 7.6 miles and encompass a 60- to 70-foot-wide corridor, depending on the topography at the U.S./Mexico international border. The post-construction survey revealed that the maintenance road was 7.6 miles long. The western terminus of the D-5B project corridor extended 178 feet west of what was presented in the ESP, and the eastern terminus of the D-6 project corridor was approximately 78 feet

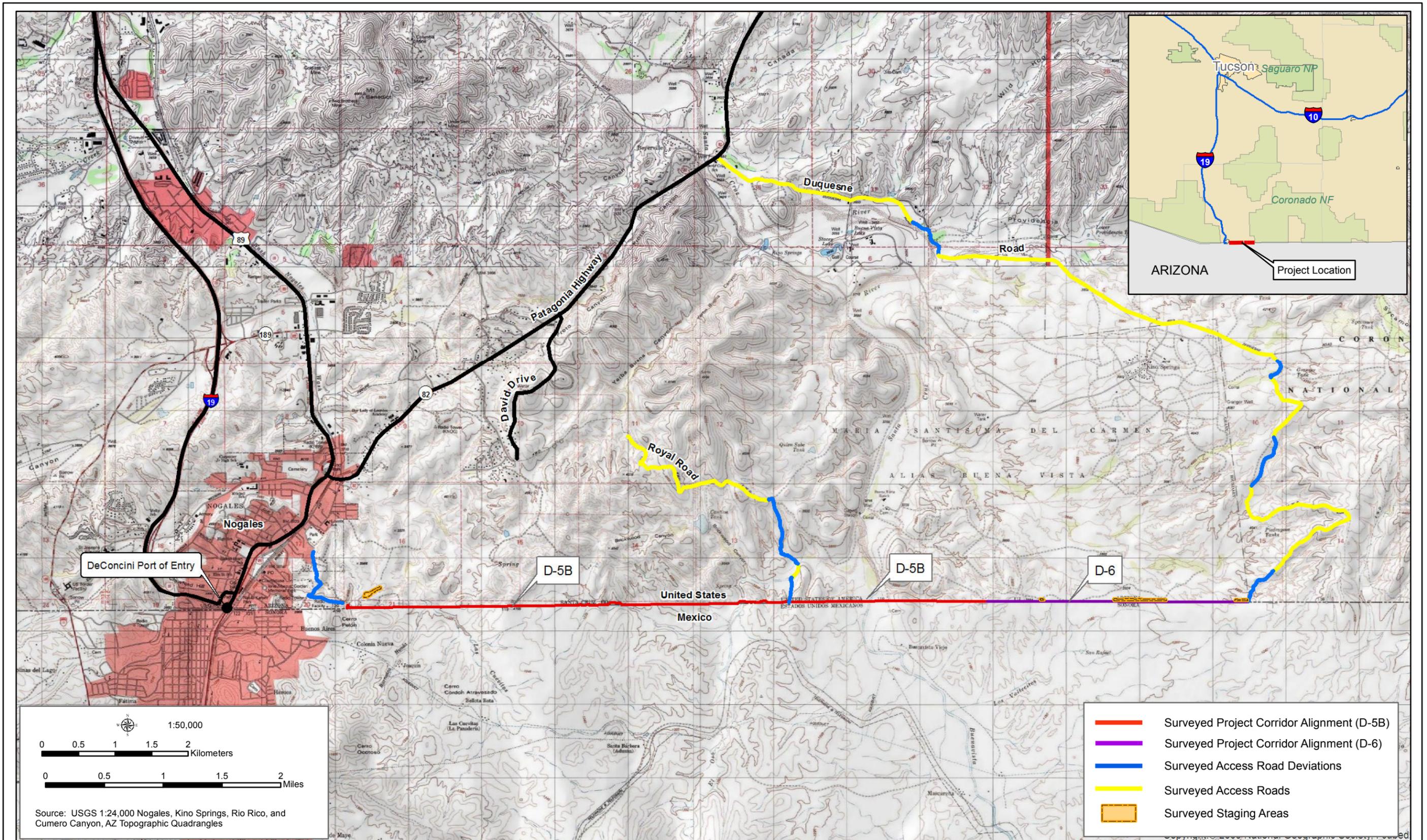


Figure 3-1: D-5B and D-6 Post-Construction Project Infrastructure

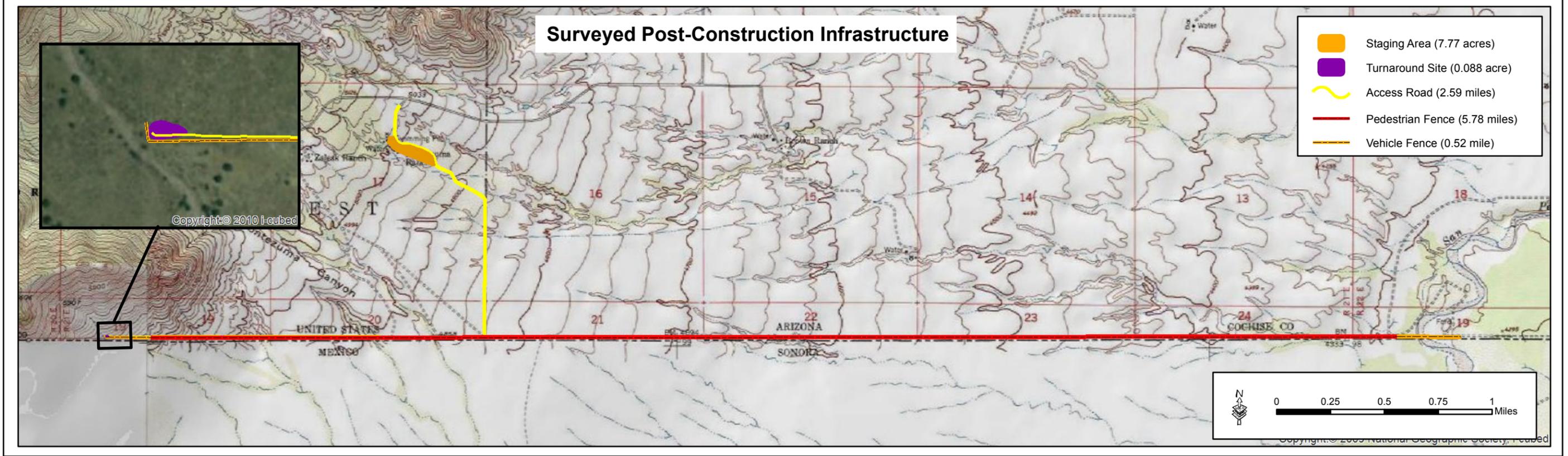
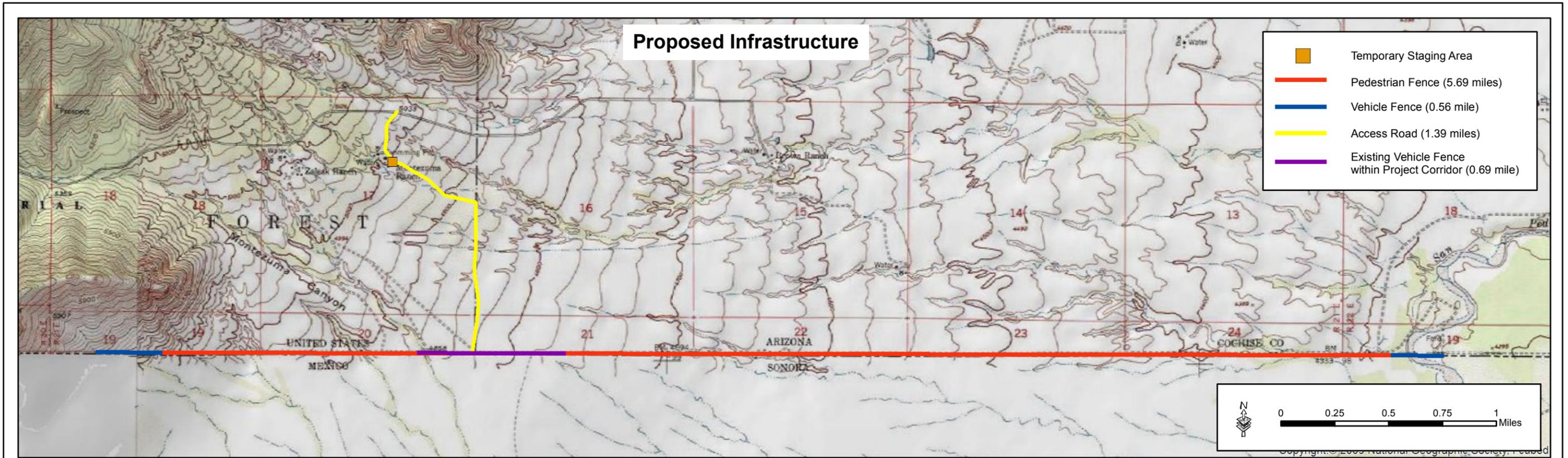


Figure 3-2: Planned versus Implemented Infrastructure of E-2A

shorter than was presented in the ESP. This slight difference is expected during normal construction activities. The survey recorded an actual maximum corridor width of 125 feet, so the planned project corridor width was not exceeded.

3.1.2.2 E-2A Segment

The length of the access road in the E-2A segment, as reported in the ESP, was planned to be 6.24 miles; however, the survey team recorded that the project corridor was 6.29 miles long. Minor changes to the length of access roads were addressed in approved CRs.

With the exception of a turnaround site in the western section of the project corridor, the width of the access road footprint did not exceed 50 feet (Photograph 3-5). The ESP assumed the project corridor width would be 60 feet wide and up to 250 feet wide in large washes. The reduction of the width of the project corridor reduced the project footprint by 7.2 acres.

At the turnaround site, approximately 0.03 acre of maintenance/patrol road is located outside the planned project corridor (Photograph 3-6).



Photograph 3-5. Width of Maintenance and Patrol Road Project Corridor Is 50 Feet along Entire Length of E-2A



Photograph 3-6. Turnaround Site on the Western Terminus of E-2A

3.2 FENCE

3.2.1 Segment D-5B and D-6

The ESP for the D-5B and D-6 project corridor reported that two types of fence would be installed. The post-construction survey confirmed installation of the two types of fences, bollard fence (PV-1) and Normandy-style vehicle fence (VF-2) (Photographs 3-7 and 3-8). According to the ESP, segment D-5B was to be 5.2 miles long and D-6 2.4 miles long. However, the length of each segment changed slightly during construction. A CR refined the approved measurements to 5.27 miles for D-5B and 2.23 miles for D-6. The post-construction survey measured the length of each type of PV-1 and VF-2 fence and found that for the D-5B and D-6 project corridor 7.4 miles of PV-1 and 0.18 mile of VF-2 fence were installed, respectively. There was also a 75-foot-long segment within the Santa Cruz River where fencing was not installed. Table 3-1 compares the planned and surveyed lengths of fence for D-5B and D-6.



Photograph 3-7. Bollard Fence (PV-1) Including Access Gate



Photograph 3-8. Normandy-style Vehicle Fence (VF-2)

Table 3-1. Comparison of D-5B and D-6 Planned and Surveyed Lengths of Fence

Type of Fence	ESP (miles)	Post-construction Survey (miles)	Difference (miles)
PV-1	7.4	7.4	0
VF-2	0.2	0.18	-0.02
Difference	7.6	7.58	-0.02

3.2.2 Segment E-2A

The ESP reported that two types of fence would be installed in the E-2A project corridor. The post-construction site survey found that three types of fences were used: bollard fence (PV-1), Normandy-style vehicle fence (VF-2), and post-on-rail vehicle fence (VF-1). The ESP stated that a Normandy-style vehicle fence would be installed for 0.18 mile on the eastern end and 0.31 mile on the western end. As mentioned above, two types of vehicle fence were installed. The Normandy vehicle fence was installed on the eastern end for 0.30 mile, and post-on-rail vehicle fence was used for 0.22 mile on the western end. This modification to fence style did not change the project footprint or affect the natural environment, and was noted in an approved CR.

The length of fence changed slightly. The post-on-rail vehicle fence, on the western terminus, turns 90 degrees to the north for 60 feet along the bank of a wash (see Photograph 3-6). The 60-foot extension to the north prevents vehicles from driving down the wash, around the end of the fence, and up the bank to access the patrol road. Figure 3-3 is a map depicting the location of the three types of fence and fence extension on the western terminus of E-2A. Table 3-2 compares the planned and surveyed lengths of fence for E-2A.

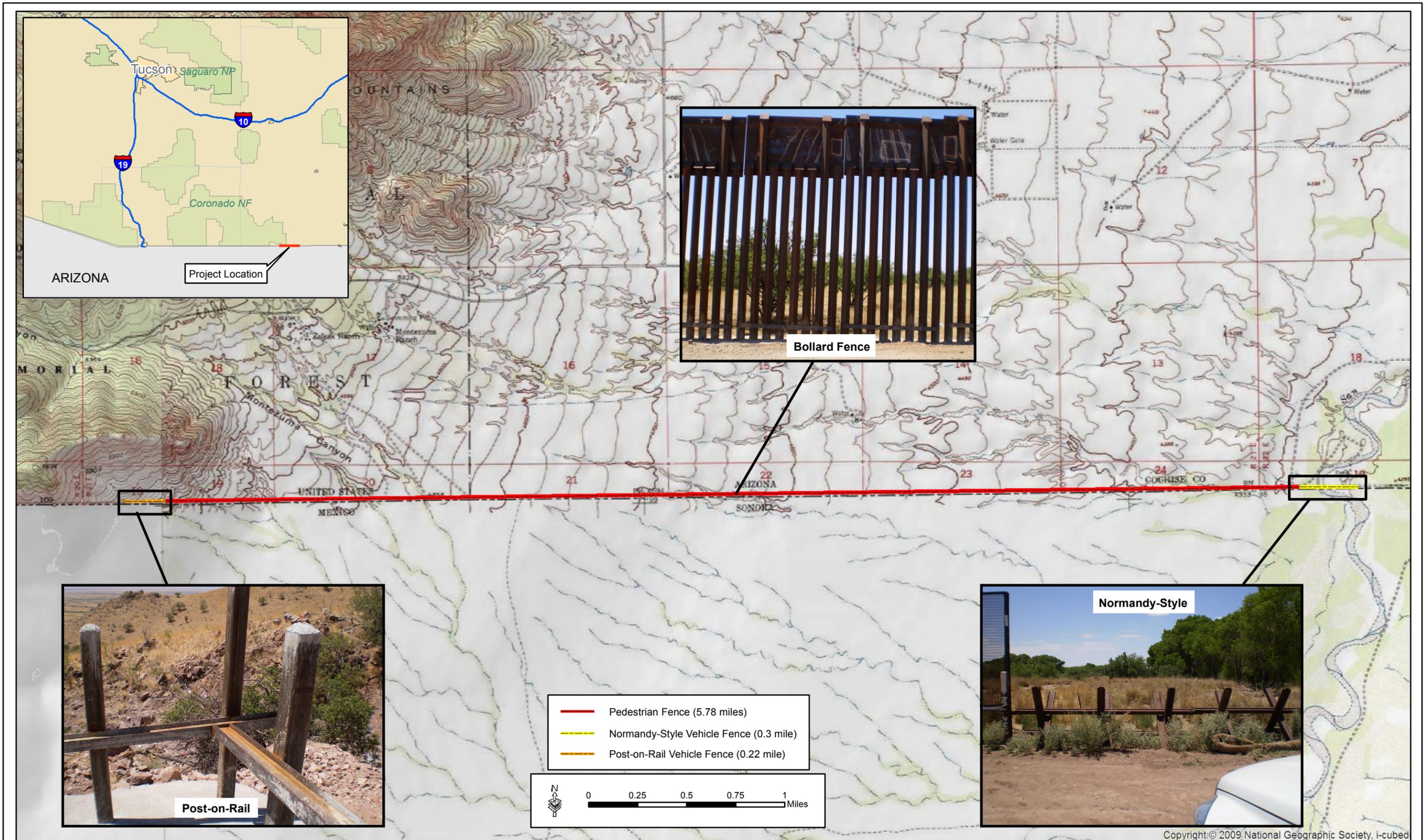


Figure 3-3: Types of Fence Installed in Section E-2A

Table 3-2. Comparison of E-2A Planned and Surveyed Lengths of Fence

Type of Fence	ESP (miles)	Post-construction Survey (miles)	Difference (miles)
VF-2	0.18	0.30	0.12
PV-1	5.75	5.78	0.03
Post-on-rail	0.31	0.22	-0.09

Four gates were also installed in the pedestrian fence to allow access to the south to control fires and manage border monuments. These gates were not in the original design specifications for E-2A, but their installation was approved in a CR. The ESP mentioned that the fence would be designed and built, as appropriate, to ensure proper conveyance of floodwaters and to eliminate potential ponding on either side of the U.S./Mexico international border. To assist conveyance of floodwater, removable panels were installed within large washes that cross the border; these panels will be removed during each monsoon season and replaced when floodwaters recede.

3.3 STAGING AREAS

3.3.1 D-5B and D-6 Segment

The ESP anticipated four temporary staging areas totaling 26 acres: one near the western terminus of D-5B, one near the center of the D-5B corridor, one approximately one mile north of the D-5B segment, and one at the eastern terminus of D-6. Two of the planned staging areas, one near the center of the D-5B corridor and one approximately one mile north of the D-5B segment, were not used. Two staging areas were added to the D-6 segment. The post-construction survey found that the footprints for all four staging areas were smaller than the acreages defined in the ESP, thereby reducing the actual project footprint by an additional 18 acres.

3.3.2 E-2A Segment

The staging area for E-2A was originally planned to encompass two acres; however, the post-construction survey indicated that the staging area encompassed 7.8 acres, which was 5.8 acres larger than planned. This expansion of the staging area was not approved by a CR.

3.4 MEASURED IMPACT QUANTITIES

3.4.1 Soils and Vegetation

The E-2A ESP predicted that approximately 3,700 agave plants would be affected by construction activities, with only 1,500 agave plants salvaged and transplanted. The biological monitoring report indicated that construction activities affected 2,087 agave plants and that 1,546 agave plants were salvaged and transplanted. Additionally, seeds were collected from 50 agave plants from multiple locations throughout the project corridor and delivered to the Coronado National Monument Natural Resources Manager for future agave planting efforts within the park boundaries.

The ESP anticipated that the planned action would permanently remove 116 acres of soils from biological production in the D-5B and D-6 project corridors and approximately 56 acres of soil

in the E-2A project corridor. Additionally, it anticipated that 28 acres of soils within temporary staging areas would be scraped and bladed using bulldozers or graders to level the area and accommodate material staging. The post-construction surveys indicated that the D-5B, D-6, and E-2A project corridors were extended slightly and access roads were also created or widened.

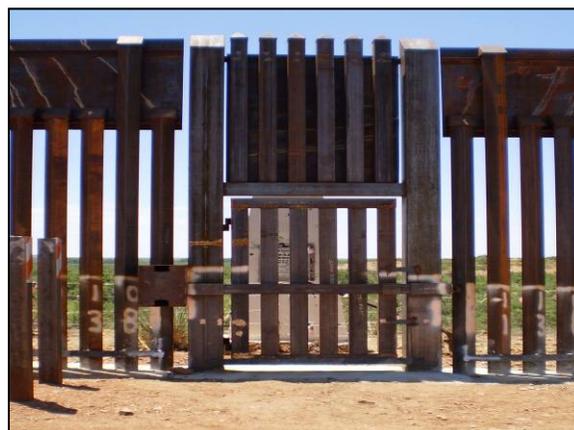
Most of these changes were authorized in various CRs described previously. One exception involves the areas of approximately three miles of road alignments along the D-5B and D-6 access roads, which added approximately 6.7 acres of permanent impacts on soils and vegetation. Other exceptions include the increased footprint of a staging area and the addition of a turnaround for the E-2A project corridor, which added approximately six acres of impacts. However, the overall permanent impacts decreased by approximately 71 acres from what was expected in the ESP. Temporary impacts on soils and vegetation decreased from 28 to 15.7 acres, because the four staging areas for the D-5B and D-6 segments were smaller than expected. Table 3-3 summarizes the change in area of permanent and temporary impacts as stated in the ESP and as measured in the post-construction surveys.

Table 3-3. Total Soils and Vegetation Impact Area Resulting from Installing D-5B, D-6, and E-2A Tactical Infrastructure

Office of Border Patrol Action	ESP Estimated Impact (acres)	Post-Construction Survey (acres)	Difference (acres)
D-5B and D-6 Fence and Road	112	50.4	-61.6
E-2A Fence and Road	54	38.2	-15.8
Staging Areas	28	15.7	-12.3
Access Roads	6.5	13.2	6.7
Turnaround site	0	0.03	0.03
Total Impacts	200.5	117.5	-82.97

3.4.2 Cultural Resources

A cultural site was discovered during construction of the new access road to the D-6 segment. Construction was halted, and the road was realigned to avoid the site. This realignment was authorized by a CR. No new cultural resources were discovered in the E-2A segment during construction or within the areas added during the modification to the staging area and access road. Gates were installed along the E-2A project corridor adjacent to border monuments, which are approximately 4 feet south of the fence. This will provide the USIBWC with access and space to repair and maintain the monuments (Photograph 3-9).



Photograph 3-9. Access Gate to Border Monument
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3.4.3 Wetlands and Waters of the U.S.

The ESP reported that 3.9 acres of floodplains and less than two acres of WUS were present within the project corridor. Results of the post-construction survey confirmed that the TI construction did not increase the footprint within these jurisdictional areas. No other additional wetlands or WUS were identified in the new construction areas that were authorized by various CRs but not addressed in the ESP, such as the new access road.

SECTION 4.0
DISCUSSION



4.0 DISCUSSION

4.1 INCREASED PROJECT FOOTPRINT

Increases in the project footprint were due to a new access road, access road realignments, and the creation of one turnaround along a project corridor. The creation of a new access road and several areas of road realignment that deviated from the access roads originally described in the D-5B and D-6 ESP added approximately 6.7 acres of permanent impacts. One turnaround in the E-2A project corridor added 0.03 acre of permanent impact.

4.2 DECREASED PROJECT FOOTPRINT

The D-5B and D-6 ESP addressed the installation of four staging areas: one near the western terminus of D-5B, one near the center of the D-5B corridor, one approximately one mile north of the D-5B segment, and one at the eastern terminus of D-6, where the new section of access road meets the fence maintenance road. Two of the planned staging areas—one near the center of the D-5B corridor and one approximately one mile north of the D-5B segment—were not used, but two others were added to the D-6 segment. The post-construction survey found that the footprints for the four staging areas were smaller than the acreages defined in the ESP, resulting in a decrease of 18 acres.

The ESP estimated that installing E-2A would permanently affect approximately 56 acres. However, the post-construction surveys indicated a reduction of 7.2 acres due to a decrease in the width of the fence/patrol road corridor. The ESP described a 60-foot corridor, but construction used only 50 feet. Additionally, the footprint of permanent impacts for the D-5B and D-6 fence and maintenance road was reduced from 116 to 50.4 acres, due to a decrease in the width of the construction footprint.

The overall permanent impacts on soils and vegetation decreased by approximately 71 acres, from the ESP estimate of 172.5 acres to 102 acres determined by the post-construction surveys.

4.3 ADDITIONAL ISSUES

The D-5B and D-6 post-construction survey identified one additional issue that requires consideration. Large areas of exposed soil (Photograph 4-1) and erosion problems were noted along the fence and maintenance road corridor, as well as the access roads, especially Royal Road (Photograph 4-2). CBP has implemented a Comprehensive Tactical Infrastructure Maintenance and Repair (CTIMR) program to ensure the fence and related roads are maintained long-term.



Photograph 4-1. Large Areas of Exposed Soil



Photograph 4-2. Erosion of Access Road at Culvert