



ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT
OF THE CONSTRUCTION, OPERATION, AND MAINTENANCE
OF TACTICAL INFRASTRUCTURE
PEDESTRIAN FENCE SEGMENTS C-1 AND C-2B
U.S. Border Patrol Yuma Sector,
Arizona and California

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



July 2012

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U.S. BORDER PATROL, YUMA SECTOR,
ARIZONA AND CALIFORNIA**

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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), Yuma Sector. USBP uses the term TI for the physical structures that facilitate enforcement activities; these items typically include 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 Yuma Sector consisted of pedestrian fence, with adjacent access and maintenance roads, in two separate segments. The first segment, designated as C-1, lies along the U.S./Mexico international border in Imperial County, California. The second segment, designated as C-2B, is adjacent to the Salinity Canal in Yuma County, Arizona. Construction designs originally planned a total of 14.2 miles of fence in both segments; however, 14.5 miles were built.

The purpose of this report is to provide a comprehensive summary of the installation of TI and assess the final design and footprint of the TI. This Environmental Stewardship Summary Report (ESSR) compares the completed project to the original plan proposed in the May 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Yuma Sector, Arizona and California*. Segment C-1 was built between July 21 and December 19, 2008. Segment C-2B was built between June 23, 2008 and September 30, 2009.

This ESSR was prepared to document the actual impact areas, compared with the original Environmental Stewardship Plan (ESP) and the changes identified in change request (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 best management practices (BMPs) and any changes or improvements for the future.
3. To document any changes to the planned location or type of the TI.

CBP provided environmental monitors during construction activities, who documented adherence to BMPs. They noted any deviations from the BMPs and the required corrections in weekly monitoring reports and on a tracking spreadsheet. The most common deviation in the Yuma Sector included off-road activity; widening of the existing roadbed due to improper use; vertical bollards without temporary or permanent covers; lack of flagging on access roads into and out of the project corridor; and lack of drip pans underneath stored equipment. At the close of construction activities, no BMP infractions remained unresolved, and no impacts on federally listed species as a result of such infractions. Furthermore, they noted no additional impacts on cultural resources.

After completing the ESP, construction contractors made changes to the alignment, design, or methods to facilitate construction, reduce costs or potential impacts, respond to stakeholder requests, or enhance the efficacy of the fence for enforcement purposes. These changes were reviewed and approved through CBP Headquarters and documented in CR forms. This report

also summarizes any significant modifications during construction that resulted in additional or reduced environmental impacts.

CBP consultants surveyed the C-1 and C-2B sites to inspect the final project corridor and infrastructure footprints and document any significant differences between the planned and completed project. When they noted changes, they checked the CR forms to see whether the changes had been recorded and approved. A total of 11 CRs were approved for the two segments, only four of which had the potential to produce environmental impacts.

The post-construction surveys found that the C-1 fence extended 0.14 mile beyond the original corridor described in the ESP, increasing its project corridor from the planned 10.3 miles to an actual 10.45 miles. A CR form was not submitted for this addition. An unplanned turnaround site on the eastern end of C-1 increased the corridor's width by 12 feet for a distance of 0.02 mile; the turnaround site affected 0.03 acre beyond the planned project corridor. A CR form was not submitted for this turnaround. This change did not result in any significant alteration of habitat. These types of insignificant differences can be expected on large construction projects. A subsequent field visit found that the turnaround site was completely covered by sand dunes, which had migrated since the initial post-construction site visit.

A staging area for C-1 was originally planned to be on the east end of the project corridor; however, CBP approved a CR authorizing the contractor to install a staging area west of the original location, as well as an access road to the new staging site. A new access road authorized in an approved CR was also built near Interstate 8 (I-8) to bypass an existing construction site.

The construction modifications and their impacts are summarized in Table ES-1. As the table indicates, the project affected 36.4 acres less than the ESP estimated.

Table ES-1. Summary of Area Impacted by C-1 and C-2B Construction Modifications

| Segment/Area | ESP Predicted Impact (acres) | Surveyed Impact (acres) | Difference (acres) |
|---------------------|------------------------------|-------------------------|--------------------|
| C-1 Fence and Road | 75 | 46.5 | -28.5 |
| C-2B Fence and Road | 27 | 28.7 | 1.7 |
| Access Roads | 0.0 | 6.5 | 6.5 |
| Staging Area | 21 | 4.9 | -16.1 |
| Total Impacts | 123 | 86.6 | -36.4 |

The C-2B project corridor was modified as well. The north end of the project corridor extended 0.04 mile beyond the original plan, and the southern end of the fence extended 0.12 mile beyond the original plan. The latter change was authorized in an approved CR. Two staging areas identified in the ESP were not used, thereby reducing the temporary construction impact in C-2B by approximately 17 acres.

The greatest increase in impacts not expected in the ESP stemmed from construction of a new access road near the All American Canal and I-8. This road, which was approved through the

CR process, caused an additional 2.4 acres of impact. Expected permanent impacts from construction in both segments were reduced by 20.3 acres. In addition, the expected impact of staging areas was reduced by 16.1 acres.

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SECTION 1.0
INTRODUCTION, OUTREACH, AND METHODS



1.0 INTRODUCTION, OUTREACH, AND METHODS

This Environmental Stewardship Summary Report (ESSR) presents a compilation of the construction actions undertaken to install tactical infrastructure (TI) under the Pedestrian Fence 225 (PF 225) program. It compares the project proposed in the May 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Yuma Sector, Arizona and California* with the final results of construction.

Before installing TI, U.S. Customs and Border Protection (CBP) performed an environmental review of the fencing projects and published the results of this analysis in the Environmental Stewardship Plan (ESP), including mitigation and best management practices (BMP) to minimize adverse effects on the environment. CBP drafted ESPs for each TI segment governed by the April 2008 Secretary of Homeland Security waiver of compliance with certain environmental laws and requirements. Some ESPs addressed specific TI segments, while others, such as for the Yuma Sector, addressed all of the planned PF 225 segments in a single document. Professional biologists and archaeologists conducted field surveys of all project corridors during planning before construction. The results of the surveys were provided for review and comment to the affected resource agencies, such as the U.S. Fish and Wildlife Service (USFWS) and State Historic Preservation Offices. Conservation measures and other BMPs identified in the ESP were made part of the request for proposals (RFP) issued to construction contractors and were also incorporated into the contract upon award.

CBP also prepared a biological resources plan (BRP) to identify the presence of sensitive biological resources, particularly federally protected species, and potential impacts on them. CBP provided the BRP to affected resource agencies and land managers for review and appended it to the Environmental Stewardship Plan (ESP). The original ESP was made available to the public on the CBP website, www.borderfenceplanning.com, which has subsequently been changed to http://cbp.gov/xp/cgov/border_security/ti/ti_docs/sector/yuma/.

Information in this ESSR was compiled from an environmental monitoring report, from approved modifications made during construction, and through a post-construction survey of the project corridor. It compares the impacts anticipated by the original ESP with actual impacts after construction for two TI segments, designated as C-1 and C-2B (Figure 1-1). This ESSR documents the actual impact areas, compared with the original ESP and approved change request (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.

1.1 PUBLIC AND AGENCY OUTREACH

Before developing the ESP, CBP prepared a supplemental environmental assessment (SEA) and draft Finding of No Significant Impact (FONSI) to address the potential effects of the project. A Notice of Availability (NOA) for the draft SEA and FONSI were published in the *Yuma Sun* on

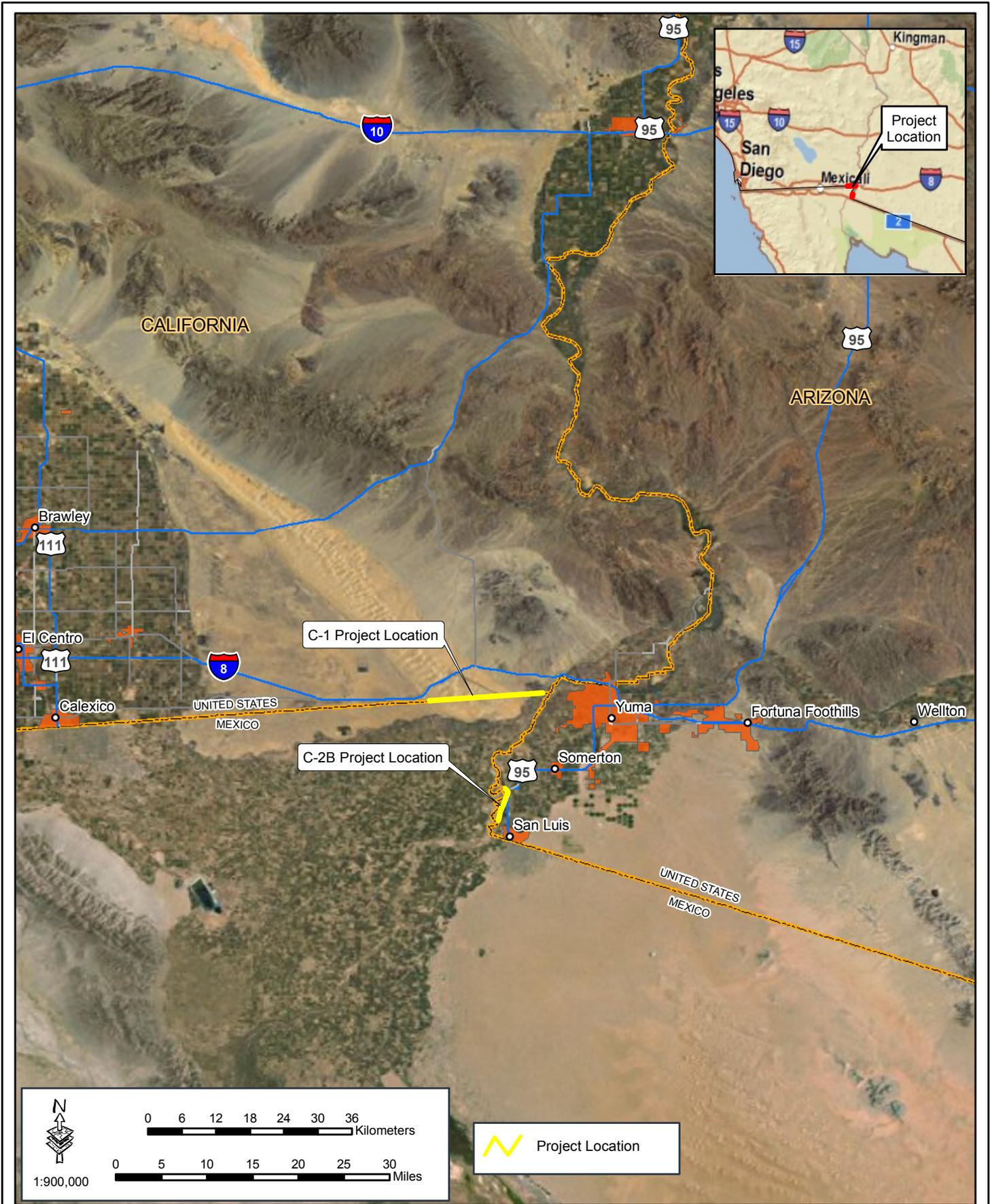


Figure 1-1: Vicinity Map

January 22 and 28, 2008, announcing the release of documents for a 30-day public comment period. In addition, CBP conducted a public meeting in Yuma regarding the draft SEA and FONSI on January 30, 2008.

After the compliance waiver in April 2008, CBP reviewed, considered, and incorporated comments on the draft SEA and FONSI received from the public and other Federal, state, and local agencies while preparing the ESP. CBP addressed and incorporated the results of public and agency coordination into the ESP and posted it for the public.

In addition, CBP continued to coordinate with various Federal and state agencies while developing the ESP and during construction. These agencies included 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 adversely affect international boundary monuments or substantially impede floodwater conveyance 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 (USFWS) - 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 coordinated with the U.S. Bureau of Land Management (BLM) and U.S. Bureau of Reclamation (Reclamation), since portions of the project lie within BLM's Algodones Dunes Recreation Area and along Reclamation's Salinity Canal.

1.2 METHODS

1.2.1 Environmental Monitoring Process

CBP provided an environmental monitor during construction in areas where federally protected species were known or presumed to occur near the project corridor. Duties of the designated environmental monitor included documenting impacts beyond those anticipated in the ESP, advising on-site construction managers on implementing the BMPs and other environmental issues as they arose, and ensuring that contractors followed the appropriate BMPs.

Environmental monitors recorded observations daily and compiled weekly reports, which they submitted to CBP and the USACE. Following completion of construction, a monitoring summary report was compiled.

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 issue identified. Upon such notification, the construction manager was to temporarily suspend activities near the federally listed species and notify the contracting officer, the administrative contracting officer,

and the contracting officer's representative of the suspension so that key USACE personnel could be apprised of the situation for resolution. In addition, CBP was to notify the USFWS Carlsbad Field Office if construction activities directly impacted any federally listed species. CBP coordinated with USFWS during construction to discuss the implementation and effectiveness of BMPs for avoiding adverse impacts on federally listed species.

1.2.2 Change Request (CR) Process

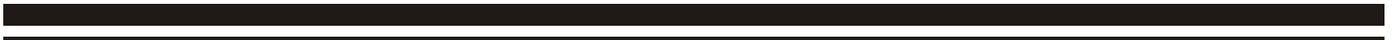
During construction, CBP identified potential modifications that would improve the effectiveness of the TI; reduce construction cost, schedule, or environmental impacts; enhance long-term maintenance requirements; address stakeholder concerns; or reduce risk to U.S. Border Patrol (USBP) agents' health and safety. These changes were reviewed and approved through CBP Headquarters, and documented in change request (CR) forms. The CR form described the proposed change or modification, justification for the change, anticipated effects on construction costs and schedule, and 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 actual installation of the TI infrastructure, including types of fence and the width of access roads and project corridors. In addition, surveys recorded biological communities, wetlands, and other environmental conditions in and adjacent to the project corridor. Surveyors also recorded any other unusual conditions they observed, such as fence failure, significant erosion, hazardous waste, or construction debris.

Before the field survey, CBP produced maps of the project corridor as described in the ESP. Surveyors reviewed the ESP for the description of locations and type of fence to be installed, location and width of access and maintenance areas, and location and size of staging areas. CBP also produced approved CR forms, which surveyors used in the field to document approved changes. A survey of the entire C-1 and C-2B project corridor recorded the center line, length, and width of construction and access road alignments using a Trimble Global Positioning System (GPS). Surveyors also took periodic GPS coordinates of the temporary and permanent construction footprint, especially when the corridor appeared to be expanded or reduced. They also recorded the perimeter 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 PROJECT

The ESP planned for construction, maintenance, and operation of a total of 14 miles of TI in the USBP Yuma Sector along the U.S./Mexico international border in Imperial County, California, and along the Bypass Canal (also known as the Salinity Canal) in Yuma County, Arizona. The project comprised two segments for the California and Arizona reaches, respectively designated as C-1 and C-2B. The project corridor for C-1 begins approximately 0.5 mile west of the Andrade Port of Entry (POE) in Imperial County and extends approximately 10.3 miles to the west to international boundary monument 210 (Figure 2-1). Most of this segment is within the Algodones Dunes Recreation Area, which consists of public lands managed by BLM. The C-2B segment is in Yuma County. Its southern end is approximately 1.5 miles north of the U.S./Mexico international border and west of San Luis, Arizona. This segment extends north for 3.7 miles along the Salinity Canal (Figure 2-2). The paragraphs below specifically describe the TI in each segment.

Maintenance will include removing any debris accumulated on the fence after rain to avoid potential future flooding. Sand that builds up against the fence will be removed, as needed. Brush removal could include mowing, removal of small trees, and application of U.S. Environmental Protection Agency (USEPA) and U.S. Department of Agriculture (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.

2.1 SEGMENT C-1

The ESP anticipated that C-1 would include approximately 10.3 miles of primary pedestrian fence and maintenance road within a 60-foot-wide corridor on the Roosevelt Reservation.¹ The ESP anticipated that the C-1 segment would have two types of fence: 6.3 miles of Pedestrian Vehicle Fence Type 4 (PV-4) and 4 miles of Pedestrian-Vehicle Fence Type 1 (PV-1). The PV-4 design is a “floating” fence style designed specifically for use in dune areas. It facilitates maintenance, as it allows fence segments to be lifted with a forklift and repositioned on the sand surface whenever sand accumulates along the fence. PV-4 fence was proposed for the dune areas, while PV-1 fence was proposed for the eastern portion of this segment. The ESP identified one staging area, which was expected to cover approximately 4 acres and be located near the eastern end of C-1.

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.

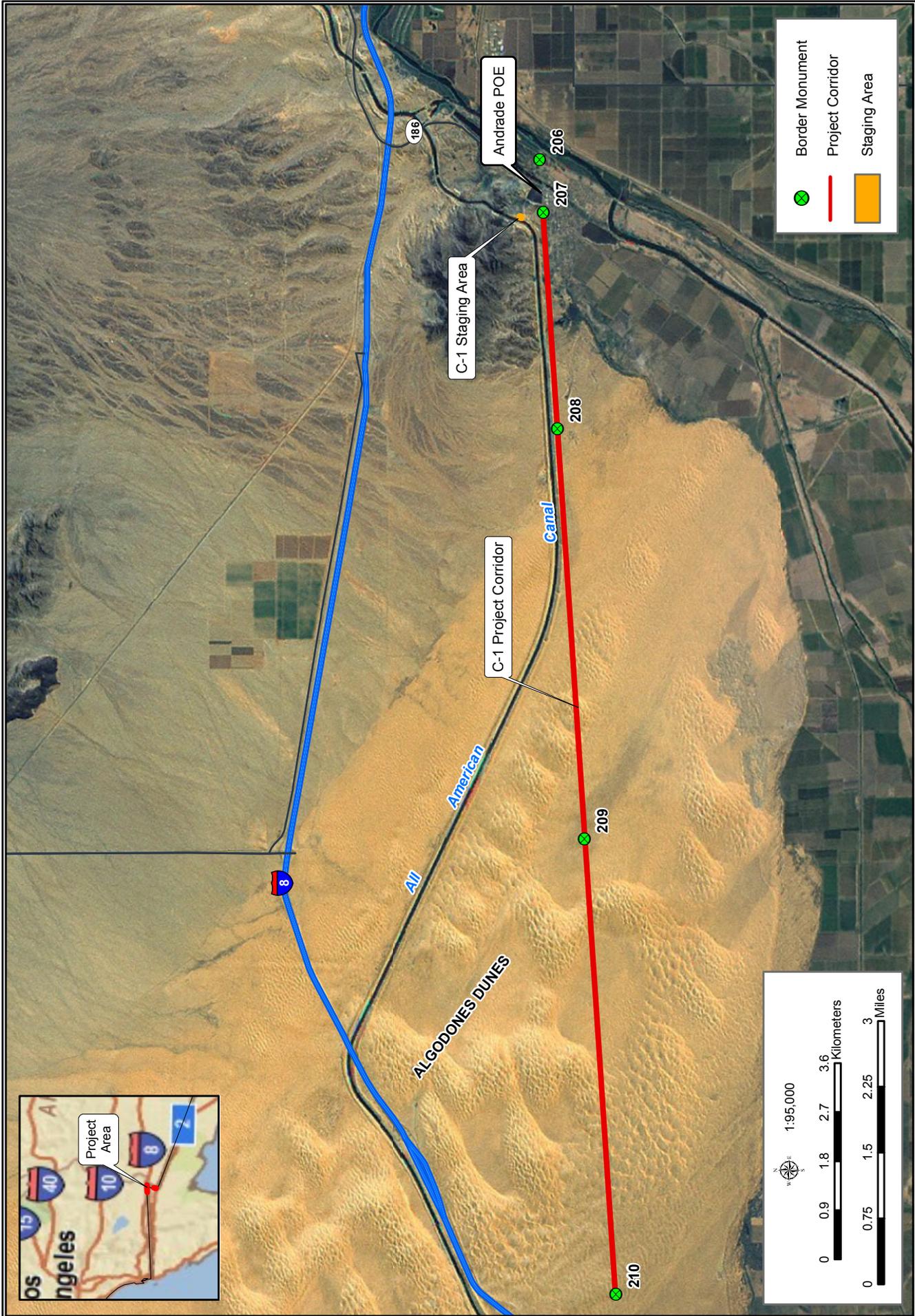


Figure 2-1: C-1 Location Map

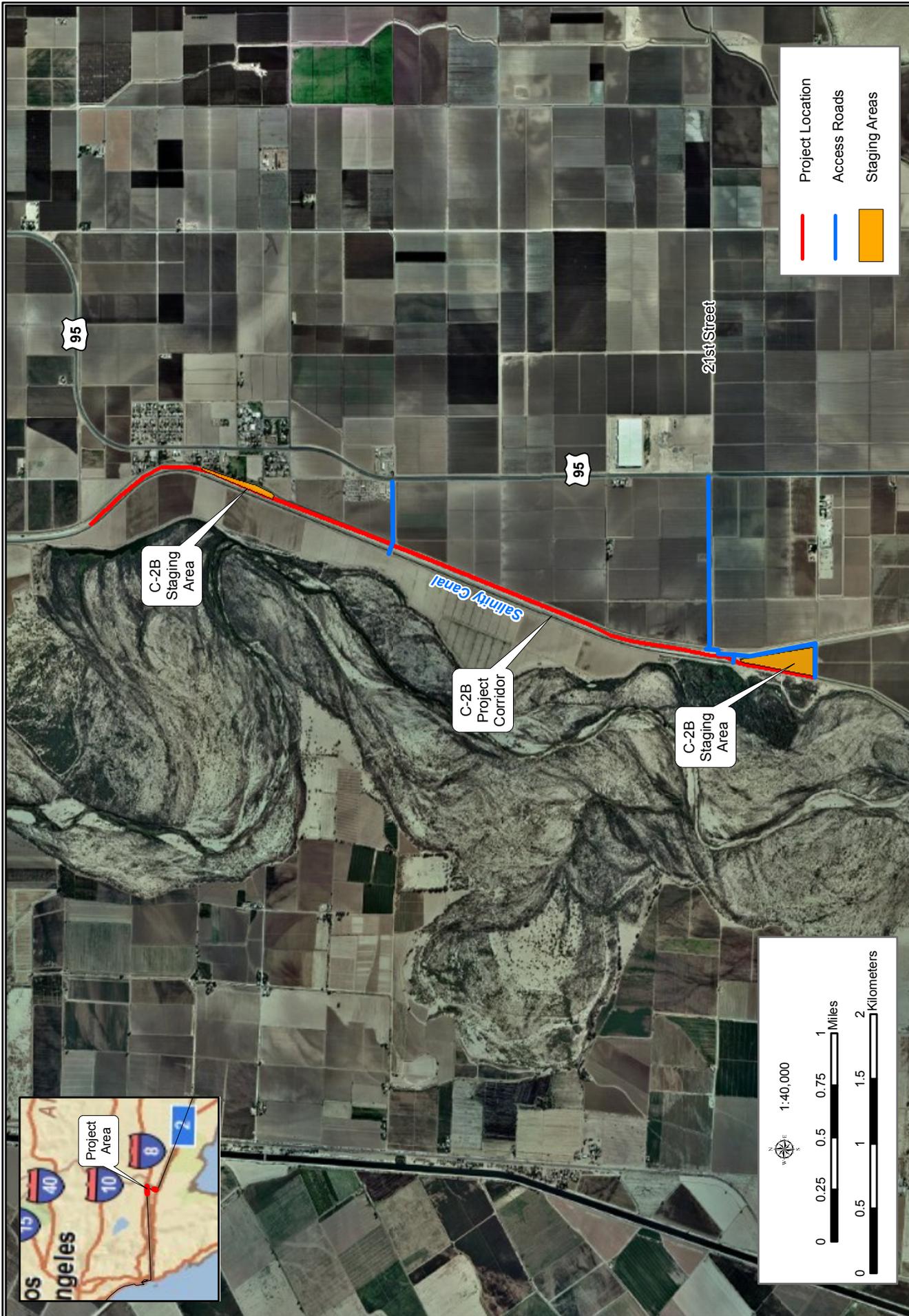


Figure 2-2: C-2B Location Map

2.2 SEGMENT C-2B

The ESP anticipated that the C-2B project corridor would be 60 feet wide, 3.9 miles long, and located along the Salinity Canal on lands managed by the Bureau of Reclamation. A primary pedestrian wire mesh fence (PV-2A, PV-2B, or PV-2C) would be installed in this segment. The southernmost 0.5 mile of fence was planned to be installed along the eastern toe of the Salinity Canal levee. The fence would then make a 90-degree turn and cross over the second levee road. The remainder of the fence would then be installed at the toe of this second levee road.

Three access gates were to be installed to provide access to local roads. The construction access road would be located on top of the Salinity Canal east levee. A maintenance road, approximately 16 feet to 20 feet wide, would be built between the levee toe and the primary pedestrian fence for the entire length of the fence. The ESP stated that a 17-acre staging area would be on the south end of the project corridor. The southern end of the project corridor was to connect to an existing pedestrian fence that ended approximately 1.5 miles north of the border. Two staging areas were planned to be used, both were adjacent to the canal levees within previously disturbed areas (see Figure 2-2).

2.3 MONITORING

During construction, unexpected field conditions required CBP to make practical changes to the project. In these situations, CBP conducted field surveys to document the additional potential environmental impacts that could occur and further coordinated with stakeholders to develop BMPs specific to these changes. In segment C-1, one such change was to remove several large earthen banks along the fence alignment that created safety concerns for operating heavy equipment. Removing these earthen banks resulted in disturbances outside the planned project footprint, but these disturbances were approved via the CR process.

The most common BMP infractions recorded by environmental monitors included off-road activity; widening of the existing roadbed due to improper use; vertical bollards without temporary or permanent covers; lack of flagging on access roads into and out of the project corridor; and lack of drip pans underneath stored equipment. Recorded impacts on federally listed species included relocation of Pierson's milkvetch (*Astragalus magdalenae* var. *peirsonii*). Environmental monitors recorded established individuals of Pierson's milkvetch during pre-construction surveys at four locations in C-1, which were relocated in accordance with BMPs.

2.4 CHANGE REQUEST FORMS

Seven CR forms were approved during the construction of the C-1 segment. However, only three modifications had the potential to affect the construction footprint and change the environmental impacts. For the C-2B segment, four changes were approved, but only one had the potential to increase environmental impacts. Table 2-1 summarizes the project modifications for both segments that could change the environmental effects anticipated in the project ESP.

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

| Approval Date | Summary Description | Potential Construction Impact |
|----------------------|---|---|
| Segment C-1 | | |
| March 20, 2008 | Relocate the staging area westward to an area south of the All American Canal where the canal turns to the northwest; build an access road to the new staging area location | New disturbance to build road and staging area |
| July 4, 2008 | Build new access road near the junction of the All American Canal and I-8 to avoid existing construction site for All American Canal | New disturbance to build access road |
| September 22, 2008 | Move the transition from PV-1 (bollard) to PV-4 (floating) by 0.23 mile | Less ground disturbance associated with PV-4 |
| Segment C-2B | | |
| Not Available | Change fence type from PV-2 (post and rail with mesh) to PV-1 (bollards) | Potential to impede wildlife movement with PV-2 |

2.5 IMPACT QUANTITIES ANTICIPATED IN THE ESP

Table 2-2 identifies the pertinent resources that the ESP expected to be impacted. This table is not all-inclusive, as post-construction quantities could not be measured for some resource impacts, such as air, noise, and socioeconomic factors.

Table 2-2. Resources Expected to be Impacted

| Resource | Impacts* | | | Comment |
|-----------------------------------|------------------|------------------|--------------|---|
| | Permanent | Temporary | Total | |
| Soils | 102.0 | 21.0 | 123.0 | 27 acres of prime farmland soils in Yuma County impacted. |
| Vegetation | 1.5 | 0 | 1.5 | Vegetation communities existed only in C-1. |
| Cultural resources | 11 sites | | 11 sites | All 11 sites are in C-1 and considered ineligible for listing on the National Register of Historic Places (NRHP). |
| Waters of the United States (WUS) | 0.026 | 0 | 0.026 | Two sites in C-1. |
| Wetlands | 0.9 | 0 | 0.9 | Six sites in C-1. |

* Unless otherwise noted, all quantities are in acres.

SECTION 3.0
POST-CONSTRUCTION FINDINGS



3.0 POST-CONSTRUCTION FINDINGS

This segment discusses the results of the post-construction surveys in both qualitative and quantitative terms, by type of construction. 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 this are expected under typical construction projects. A summary of impacts, based on these post-construction surveys, appears at the end of this segment.

3.1 RESULTS OF ROAD MEASUREMENTS

3.1.1 Access Roads

3.1.1.1 C-1

A new access road from Interstate 8 (I-8) to the All American Canal was built near Gray's Well Road and Buttercup Road. This access road was not planned in the ESP but documented in a CR, which authorized a road approximately 1.09 miles long. CBP consultants recorded approximately 0.72 mile of new road; the remaining 0.38 mile identified in a CR consisted of portions of the existing road parallel to I-8 and the All American Canal road (Figure 3-1). The total area impacted by this access road was 5.8 acres.

In addition, the ESP did not address relocating the staging area or building a new access road to the new staging area cut through the All American Canal levee (Figure 3-2). This modification was also documented in a CR. The new access road (Photograph 3-1) was 0.17 mile long and approximately 30 feet wide (0.7 acre).



Photograph 3-1. Access Road at C-1 Staging Area

3.1.1.2 C-2B

The C-2B project corridor is next to the town of Gadsden, and new access roads were not required.

3.1.2 Maintenance Roads

3.1.2.1 C-1

An initial post-construction survey reported that the fence and adjacent maintenance road footprint encompassed the 60-foot-wide Roosevelt Reservation, which was the footprint planned in the ESP. A subsequent post-construction survey, however, found that shifting sand dunes had reclaimed much of the road footprint. In addition,



Photograph 3-2. Turnaround Site at Western End of C-1

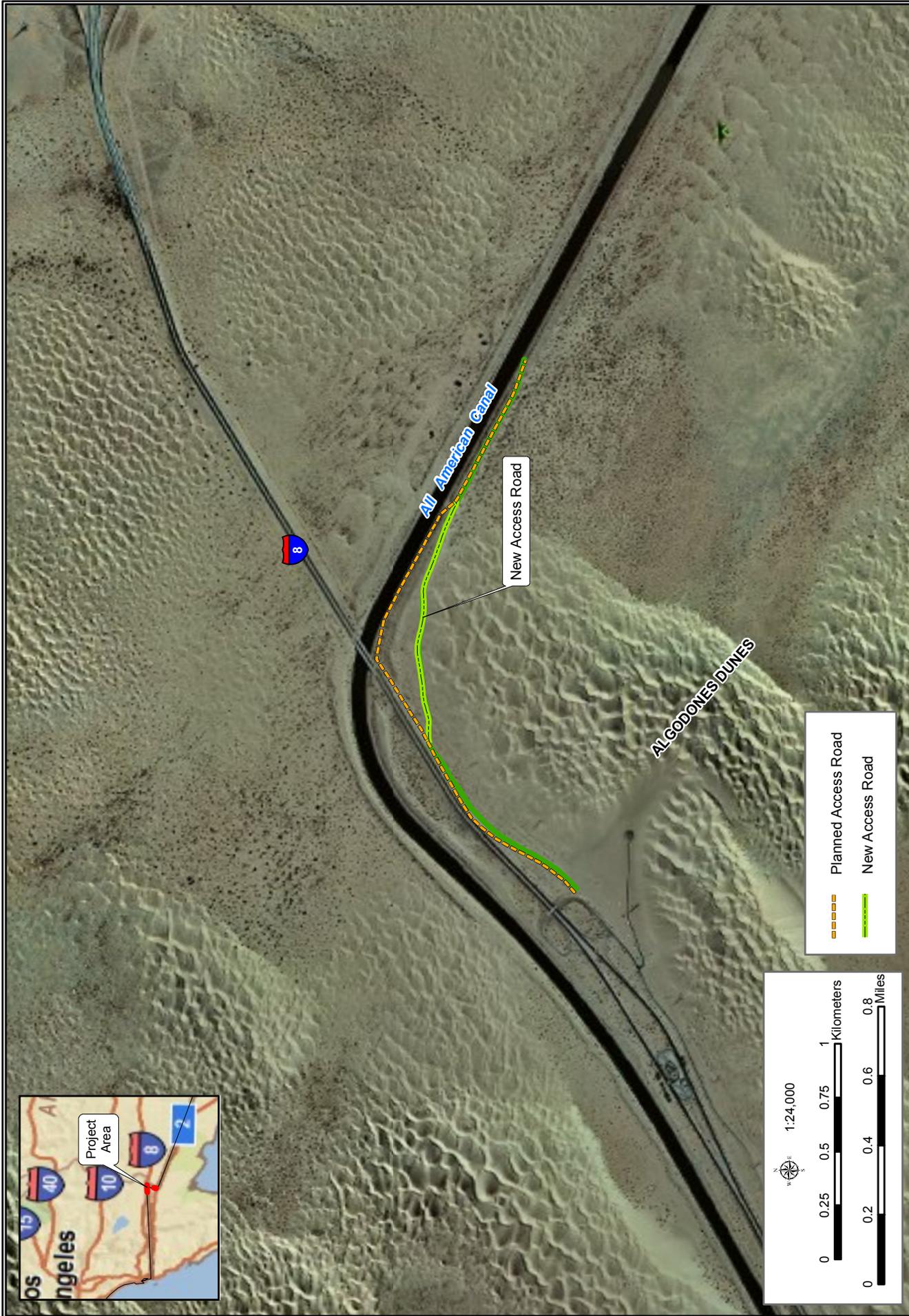


Figure 3-1: New Access Road

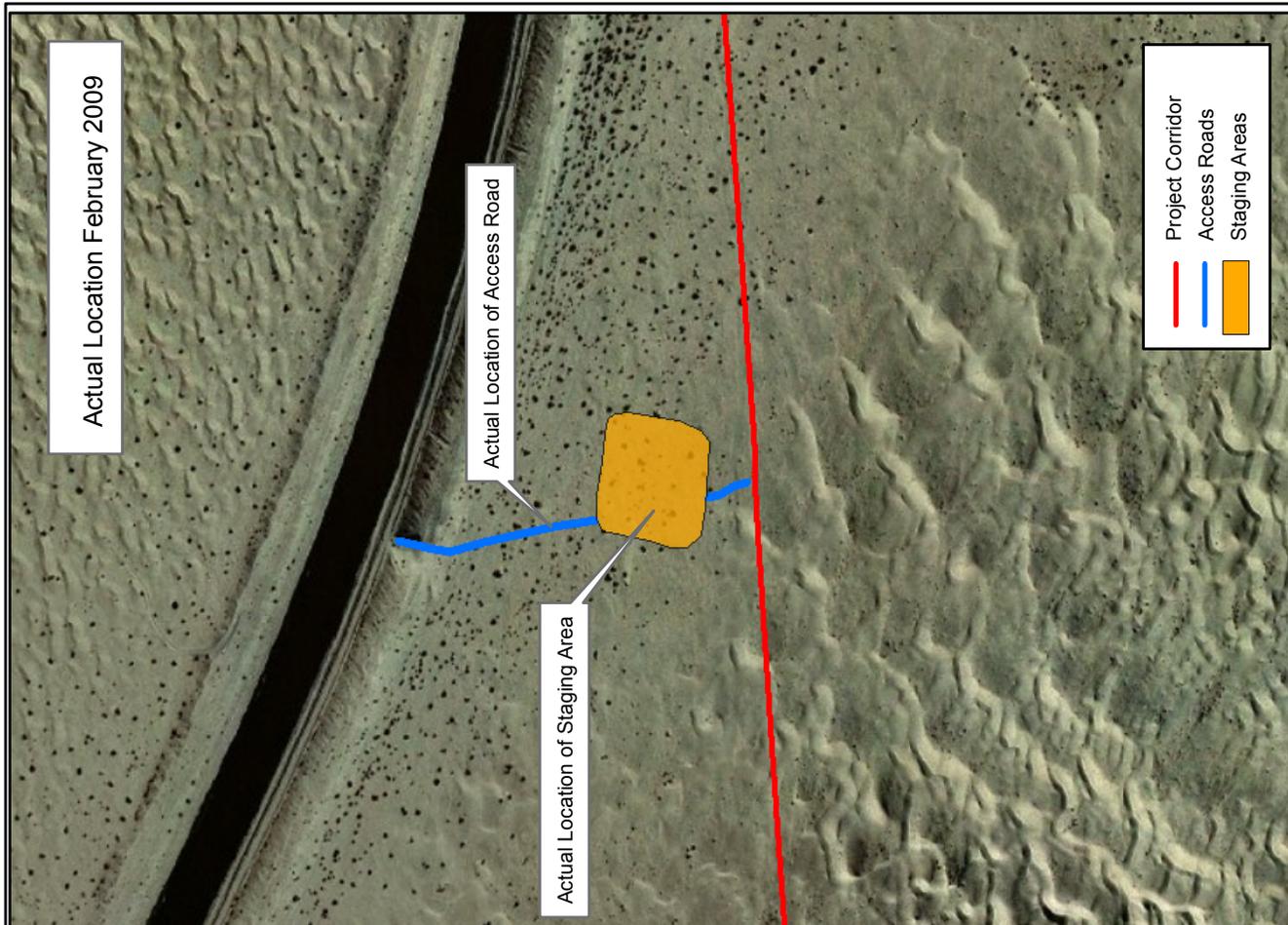


Figure 3-2: C-1 Staging Area Location

the initial survey reported that a turnaround site at the western end of C-1 widened the project corridor by 12 feet for a distance of approximately 0.02 mile. At the turnaround site, approximately 1,440 square feet (0.03 acre) of maintenance road is outside the proposed project corridor (Photograph 3-2). This site had been naturally reclaimed by the time of the subsequent survey. The maintenance road, as planned in the ESP, was supposed to be 10.3 miles long; however, the post-construction survey recorded the project corridor as 10.45 miles long. The western end of the C-1 project corridor was approximately 0.15 mile west of what was presented in the ESP.

3.1.2.2 C-2B

The ESP anticipated that a maintenance road approximately 16 to 20 feet wide would be built on the west side of the fence between the levee toe and pedestrian fence for the entire length of the fence. However, the post-construction survey found that the maintenance road was installed on the east side of the fence. The road was 14 feet wide. The total width of the project corridor (60 feet) did not change, despite the relocation of the maintenance road.

The maintenance road for C-2B is on top of the Salinity Canal levee. The ESP anticipated that the road would be 3.7 miles long; however, the length was extended to the north by approximately 0.04 mile (Figure 3-3) and southward approximately 0.12 mile to the northern end of the existing pedestrian fence. The latter modification was approved in a CR. The post-construction survey recorded the total length of road built as 3.9 miles (Figure 3-4).

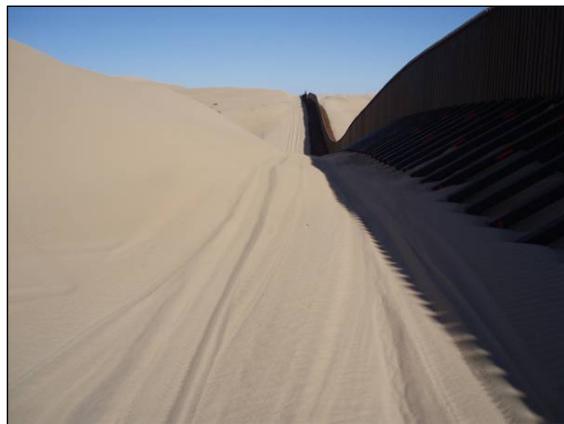
3.2 FENCE

3.2.1 C-1

The ESP anticipated that the C-1 project corridor would have two types of fence. The post-construction survey confirmed that two types of fences (PV-1 and PV-4) were installed (Photographs 3-3 and 3-4).



Photograph 3-3. PV-1 Fence Type



Photograph 3-4. PV-4 Fence Type

However, the length of each type changed slightly during construction. A CR was approved to replace 0.23 mile of PV-1 with PV-4 fence, due to inappropriate soil conditions. The survey measured the length of each type of fence, compared to the ESP, as presented in Table 3-1.



Figure 3-3: C-2B Northern Portion

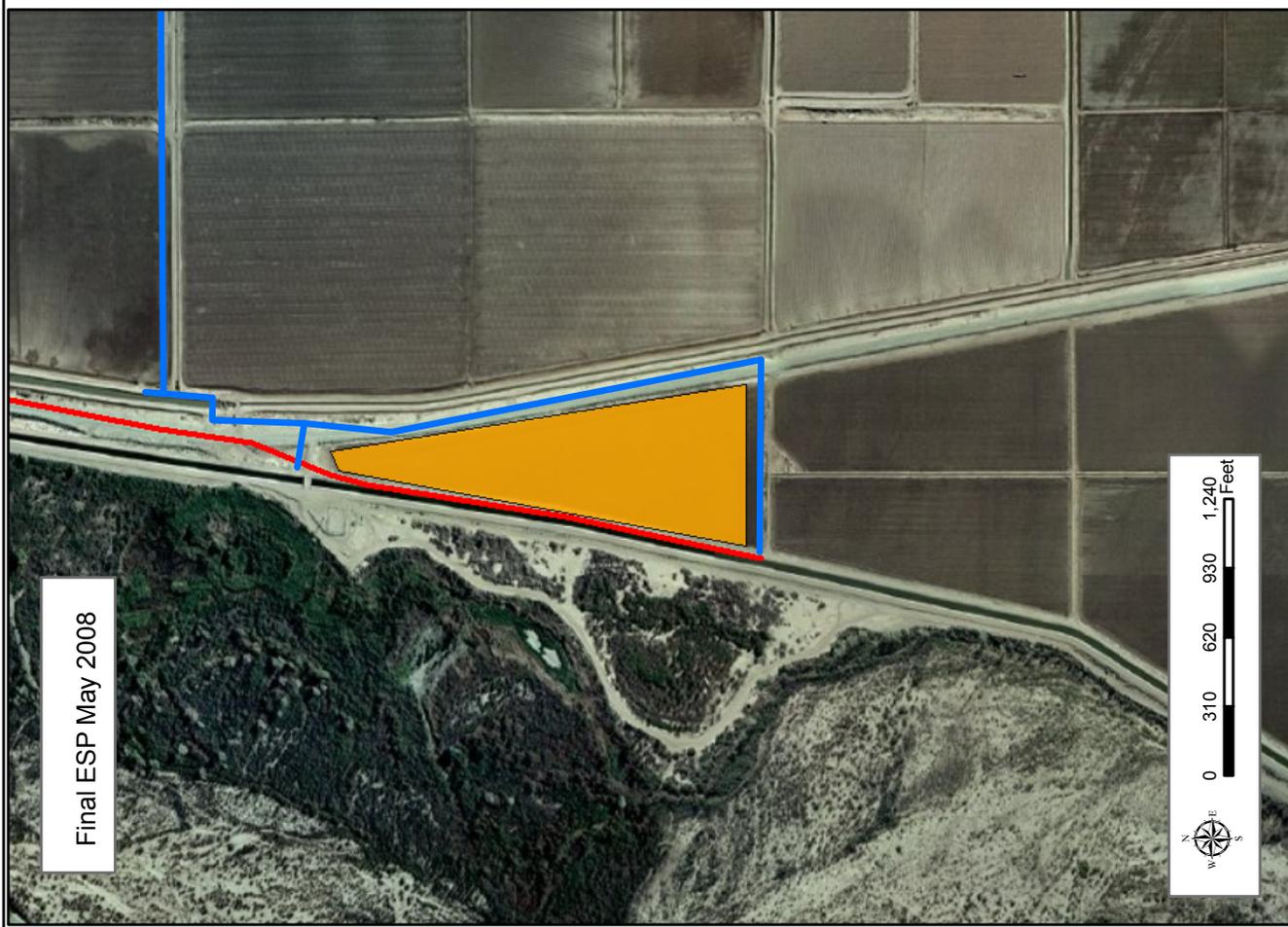
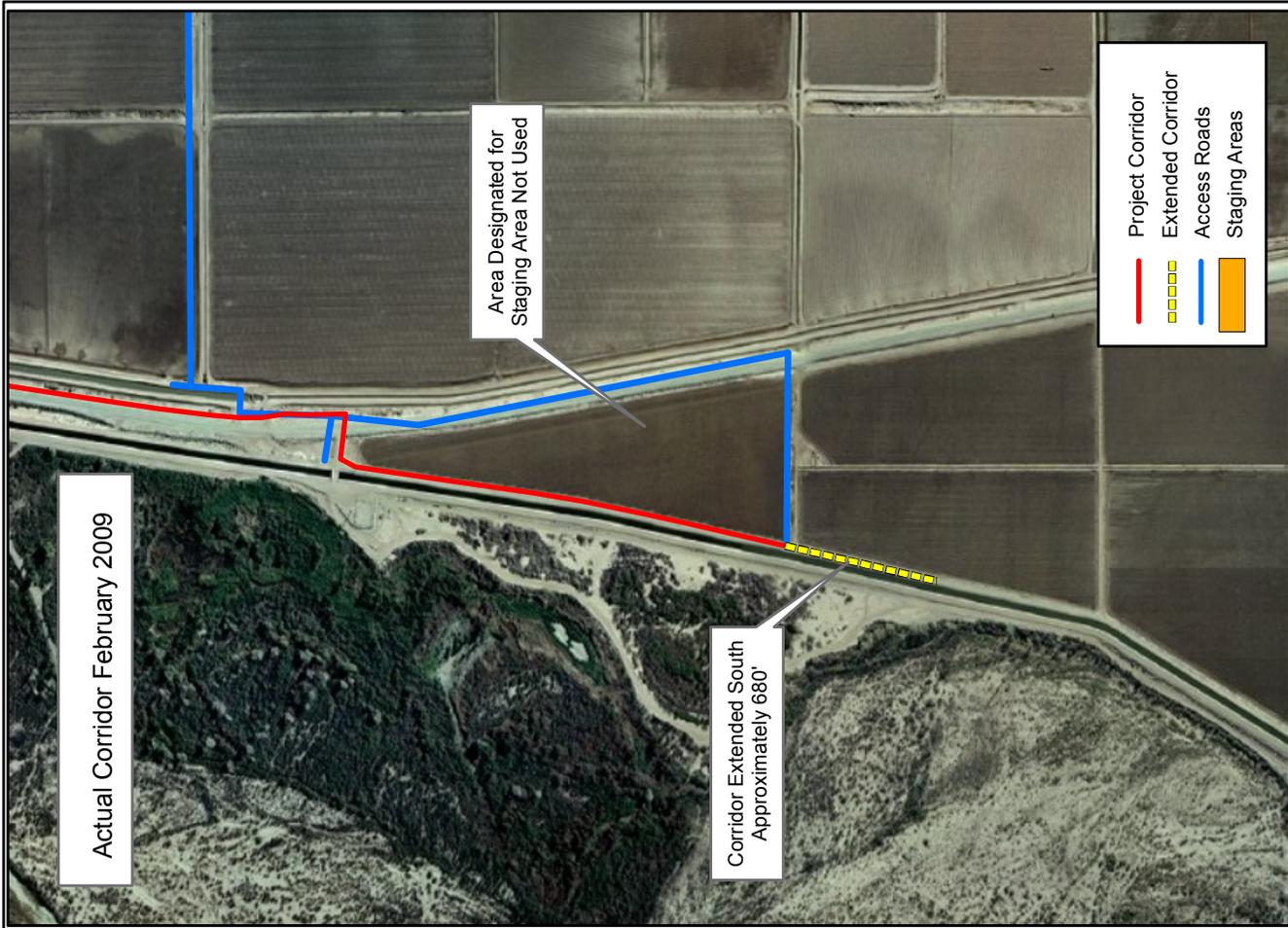


Figure 3-4: C-2B Southern Portion

Table 3-1. Comparison of Predicted and Surveyed Length of Fence

| Type of Fence | ESP Predicted Length (miles) | Length as Surveyed (miles) | Difference (miles) |
|---------------|------------------------------|----------------------------|--------------------|
| PV-1 | 4.0 | 3.86 | -0.14 |
| PV-4 | 6.3 | 6.59 | 0.29 |
| Total | 10.3 | 10.45 | 0.15 |

3.2.2 C-2B

The ESP stated that segment C-2B would have 3.7 miles of wire mesh vehicle fence (PV-2A, PV-2B, or PV-2C); however, the post-construction survey found that PV-1 fencing was used for the entire 3.9 miles of the segment. This modification was documented in a CR.

3.3 STAGING AREAS

3.3.1 C-1

The location of the staging area for C-1 was changed from the eastern end to the middle of the project corridor, where the All American Canal begins to trend toward the northwest. The new staging area was established 4.1 miles west of the eastern end of the project corridor. The location of the new staging area is shown in Figure 3-2. The post-construction survey found that the staging area also increased in size from 4 acres, as planned in the ESP, to 4.9 acres.

3.3.2 C-2B

The ESP stated that C-2B would have a staging area on the south end of the project corridor on a triangular parcel of land and another smaller area adjacent to the canal levee. The staging areas were planned to encompass approximately 17 acres in total. The post-construction survey found that the contractor did not use a staging area and did not disturb the land, resulting in a reduction of the temporary impacts from those anticipated in the ESP. The contractor stored construction equipment and material on the Salinity Canal levee road.

3.4 MEASURED IMPACT QUANTITIES

3.4.1 Soils

The ESP anticipated that the project would permanently remove all biological habitat from 102 acres of soils. It also estimated that 21 acres of soils in temporary staging areas would be scraped and bladed using bulldozers or graders to level the area and accommodate material staging. The post-construction field survey found that the C-1 and C-2B project corridors were extended slightly and two new access roads were installed. Most of these changes were authorized in various CRs described previously. The two exceptions were: (1) the modifications to the western end of the C-1 project corridor that extended 0.14 mile beyond the planned end point and widened to accommodate the turnaround site; and (2) the extension of the C-2B segment approximately 0.04 mile to the north. However, permanent impacts on soils decreased by 20.3 acres from what the ESP expected, from 102 acres to 81.7 acres. Temporary impacts decreased from 21 acres to 4.9 acres, because the contractor did not use planned staging areas in C-2B. Table 3-2 compares the permanent impact areas estimated in the ESP with those measured in the post-construction surveys.

Table 3-2. Total Area of Soils Permanently Impacted by Installation of C-1 and C-2B Tactical Infrastructure

| Segment/Area | ESP Estimated Impact (acres) | Surveyed Impact (acres) | Difference (acres) |
|-----------------------|-------------------------------------|--------------------------------|---------------------------|
| C-1 Project Corridor | 74.9 | 46.5 | -28.5 |
| C-2B Project Corridor | 26.9 | 28.7 | 1.7 |
| Access Roads | 0.0 | 6.5 | 6.5 |
| Total Impacts | 101.8 | 81.7 | -20.3 |

3.4.2 Vegetation

Fence and road construction in C-1 affected approximately 1.5 acres of riparian and desert scrub habitat. Of this, 0.9 acre was considered jurisdictional wetlands consisting of cattail (*Typha* sp.), willow (*Salix goodingii*), and giant cane (*Arundo donax*). The remaining 0.6 acre consisted of scattered, isolated communities of creosote bush (*Larrea tridentata*), palo verde (*Cercidium* sp.), salt cedar (*Tamarix* sp.), smoke tree (*Dalea spinosa*), and four-wing saltbush (*Atriplex canescens*).

3.4.3 Cultural Resources

No new cultural resources were found in the impact areas added to C-1 and C-2B.

3.4.4 Wetlands and Waters of the United States

Results of the post-construction field surveys confirmed that the footprint within the jurisdictional wetland areas did not increase beyond what was originally planned, 0.026 acre of waters of the U.S. (WUS) and 0.9 acre of wetlands. CBP identified no other additional wetlands or WUS where the project corridor was modified, such as the new access roads and staging area. Post-construction surveys also confirmed the absence of these resources in C-2B. However, the extension of the southern end of the C-2B project corridor (approximately 0.12 mile) is in the 100-year flood zone.

SECTION 4.0
DISCUSSION



4.0 DISCUSSION

4.1 INCREASED PROJECT FOOTPRINT

The permanent impacts on soils and vegetation decreased by 20.3 acres, from the original ESP estimate of approximately 102 acres to 81.7 acres determined by the post-construction survey. As Table 3-2 indicates, the decrease was largely due to reducing the footprint width in the C-1 project corridor, even though the length was extended by 0.14 mile and two new access roads were built. The modifications on the roads were authorized and documented in change requests; however, the fence extensions of 0.14 mile on the west end of C-1 and 0.04 mile on the north end of C-2B were not authorized. Initial post-construction surveys found that the footprint of C-1 was wider than planned; however, a subsequent field visit found that the turnaround site was completely covered by sand dunes, which had migrated since the initial post-construction site visit.

4.2 DECREASED PROJECT FOOTPRINT

The ESP expected installation of three staging areas: a 4-acre site in C-1, and two areas in C-2B encompassing 17 acres. However, the contractor did not install or use any staging areas in C-2B and instead stored and maintained equipment and materials on the Salinity Canal Road. Consequently, the temporary impact areas decreased from the 21 acres estimated in the ESP to 4.9 acres.

4.3 ADDITIONAL ISSUES THAT NEED TO BE RESOLVED

Two issues identified during post-construction surveys require some further consideration. First, erosion problems were evident on both sides of the levee adjacent to the Salinity Canal Road in C-2B (Photograph 4-1). This erosion can be controlled if the sides of the levee are revegetated; however, the Bureau of Reclamation is responsible for maintaining the levees, and similar conditions occur along the levee in other areas where TI has not been installed. CBP is developing contracts to repair and maintain the TI, which will resolve issues such as erosion.



Photograph 4-1. Typical Erosion in C-2B Segment

The second issue is how the floating fence is maintained. As discussed in section 2.1 of this ESSR, the PV-4 fence was designed to be lifted using forklifts, and repositioned on the sand surface whenever sand accumulated along the fence. The post-construction survey found holes under the fence that were reportedly caused by wind. These holes were backfilled by a front-end loader, using sand from within the Roosevelt Reservation as borrow material. CBP is implementing a Comprehensive Tactical Infrastructure Maintenance and Repair (CTIMR) program to ensure the TI and related areas are maintained and repaired as needed.