



Commercial Launch Site

**Fence Addition Addendum to Approved
September 2014 Wetland Mitigation Plan**

Revision 0

September 2016

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1.0 Project Information

1.1 Background

The Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST) prepared an Environmental Impact Statement (EIS) to evaluate the potential environmental impacts that may result from the FAA Proposed Action of issuing launch licenses and/or experimental permits that would allow Space Exploration Technologies Corp. (SpaceX) to launch the Falcon 9 and Falcon Heavy orbital vertical launch vehicles and a variety of reusable suborbital launch vehicles from a launch site on privately owned property in Cameron County, Texas.

Department of the Army Permit Number SWG-2012-00381 was issued in September 2014 authorizing the placement of fill material into 3.3 acres of waters of the United States (U.S.) for the purpose of constructing Space Exploration Technologies (SpaceX)'s Commercial Launch Site.

During subsequent project design, SpaceX determined that potential wetland impacts would exceed the previously estimated and permitted 3.3 acres of fill material. SpaceX is therefore revised the mitigation plan to account for the additional impacts. Department of the Army Permit Number SWG-2012-00381 was therefore re-issued in January 2016 authorizing the placement of fill material into 5.5 acres of waters of the United States (U.S.) for the purpose of constructing Space Exploration Technologies (SpaceX)'s Commercial Launch Site.

Subsequently SpaceX and Texas Parks and Wildlife Department have identified a need to develop a security fence and associated security road. The additional infrastructure would be beneficial to both organizations.

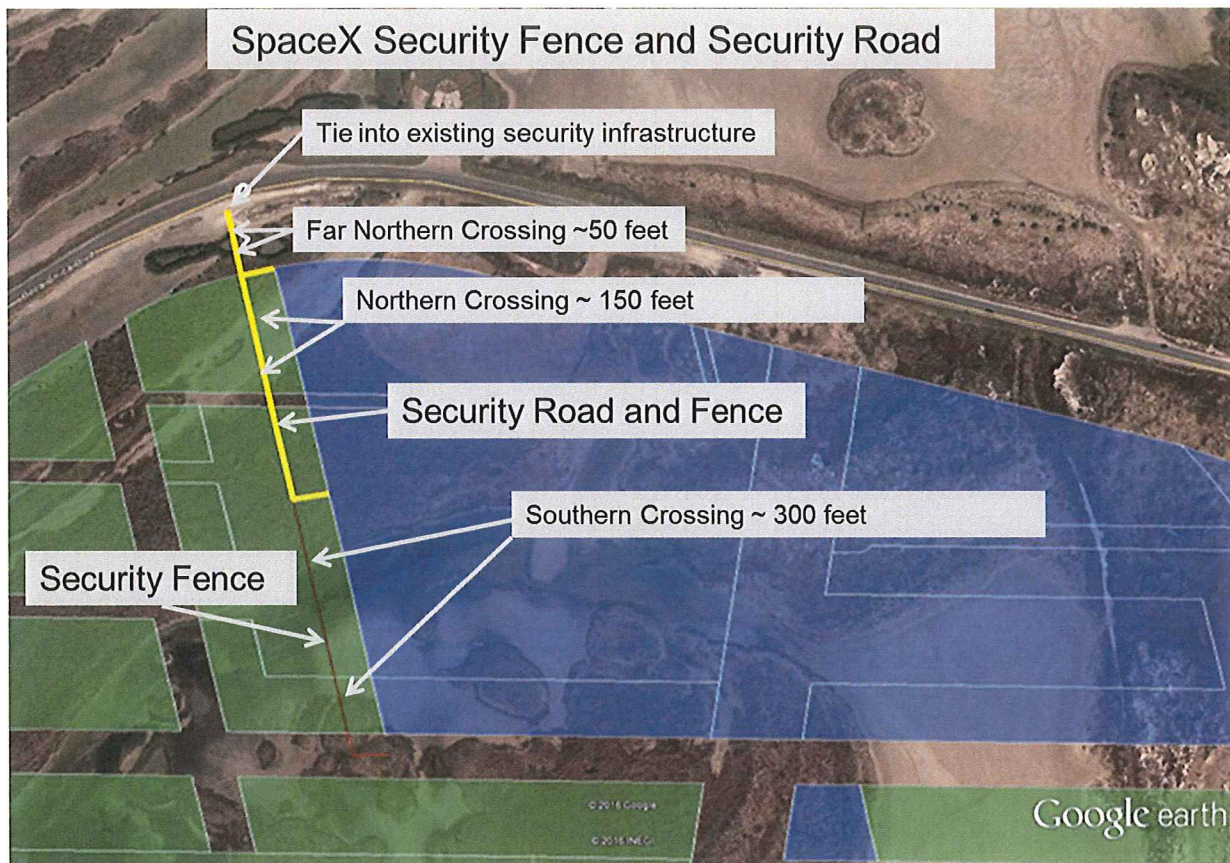
SpaceX is therefore further revising the mitigation plan through this Addendum in order to ensure that sufficient mitigation is being provided for additions to the project.

1.2 Revised Proposal

The proposed project includes the construction of a security fence and associated security road. A project layout is included in **Attachment A**. On the attachment, the proposed fence is shown in red. The proposed fence crosses three areas (two crossings towards the north and one crossing towards the south) that have been determined as wetland according to National Wetland Inventory Data and SpaceX EIS. The far northern crossing includes approximately 50 feet of wetland, the northern crossing includes approximately 149 feet of wetland and the southern portion includes approximately 302 feet of wetland for a total run of approximately 501 feet of fence within wetland. Based on the anticipated size of the fence posts, the total wetland impact associated with the construction of the fence would be approximately 0.0002 acres. The fence would connect with existing SpaceX security fencing.

On Attachment A, the yellow line represents the security road. Similar to the fence above, the proposed security road crosses an area that has been determined as wetland according to National Wetland Inventory Data and the SpaceX Environmental Impact Study. The security road would however, only affect the far north and northern wetland area. The total wetland impact associated with the installation of the security fence is therefore approximately 0.082 acres (approximately 199 feet long by 18 feet wide). The security road would also include a series of culverts in order to enable a hydrological connection and prevent pooling between the SpaceX facility and the security road.

The total project impact for both the fence and the security road is therefore approximately 0.082 acres of fill material within Waters of the U.S., including wetland.



Attachment A

1.3 Need and Purpose

The SpaceX facility has security-related requirements which include facility perimeter fencing. The SpaceX facility is directly adjacent to TPWD owned land. The mission of TPWD is to manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations. Boca Chica Beach offers a unique experience that is popular with both tourists and the local community. As a result of this, managing the vehicular and pedestrian traffic within this sensitive dune habitat is an ongoing challenge for resource managers as the area currently has

multiple entry/exit points. The project is therefore needed to further develop SpaceX security infrastructure while helping establish entry and exit points within the area in order to further facilitate the management of TPWD sensitive habitat.

The purpose of the project is to meet SpaceX security requirements while taking advantage of the additional infrastructure in order to further enable effective habitat management within the area.

2.0 Compensatory Mitigation

2.1 Goals and Objectives

The goals and objectives associated with the project mitigation remain the same as presented in the approved September 2013 Commercial Launch Site Wetland Mitigation Plan, with the following revisions:

Objectives:

- Offset the permanent loss of an additional 0.08 acres of wetlands.
- Provide ecologically self-sustaining aquatic resource preservation.
- Secure tidal wetlands for preservation in perpetuity, preferably contiguous to existing protected land.

2.2 Site Selection

Property boundaries have largely determined site selection for this project. Within those constraints, original plans for the proposed project included having the security road run the entire length of the security fence. In an effort to reduce impacts to Waters of the U.S., SpaceX and TPWD were however able to coordinate efforts in order to leverage the maximum value of the security infrastructure that SpaceX will be installing as part of their launch site construction. As a result of these efforts, it was determined that the associated security fence could be shortened, avoiding approximately 302 feet or 0.12 acre of impacts (302 feet long by 18 feet wide). In addition, the inclusion of culverts within the portion of the security road that falls within wetland would enable a hydrological connection to be maintained.

SpaceX has taken all the appropriate and practicable steps to minimize impacts to aquatic resources to the greatest extent possible. During coordination associated with the previously approved applications, SpaceX concluded that the existing wetland system onsite has a high level of function and value, eliminating opportunities for onsite wetland re-establishment, rehabilitation or enhancement. SpaceX also concluded that the utilization of all of the available upland on the project site eliminated any opportunities for on-site establishment of wetlands.

As a result, SpaceX has turned their efforts to considering areas for preservation. In order to offset the additional 0.08 acres, SpaceX will make a 24 parcel land donation totaling 6.4-acres of land.

In general, the preservation of these parcels will:

- Preserve aquatic ecosystem functions and hydrologic conditions in an amount sufficient to offset losses.
- Accomplish ecologically self-sustaining aquatic resource preservation objectives.
- Ensure mitigation success as the land area currently functions within a wetland system.
- Provide land that is adjacent to other protected land (TPWD) which eliminates the potential for surrounding development or adjacent land use changes and extends contiguous protected land within the watershed.

2.3 Site Protection Instrument

SpaceX proposes to donate the land to TPWD. Agency ownership of the property would ensure the long-term protection of the compensatory mitigation project site, further increasing TPWD ownership of protected land within the watershed.

2.4 Baseline Information/ Site History

The description of the proposed project site remains the same as described in the previously approved Mitigation Plan.

The SpaceX parcels to be donated to TPWD are mapped below. All of the parcels are located in Cameron County, within the South Laguna Madre watershed, the same watershed as the proposed project and the Port Mitigation land (mitigation land for previously issued Permit). These are privately owned and isolated parcels surrounded by TPWD land, and will thus result in full local continuity of TPWD-owned property.



SpaceX Parcels to be donated to TPWD



SpaceX Parcels to be donated to TPWD

Descriptions of Historic and Existing Plant Communities

The description of historic and existing plant communities remain the same as described in the approved September 2013 Mitigation Plan.

The SpaceX parcels to be donated to TPWD consists of dunes, high marshes and tidal flats. Typical plants found in loma/tidal flats include sea ox-eye (*Borrchia frutescens*), saltwort (*Batis maritima*), and glasswort (*Salicornia virginica*) on vegetated portions of the flats, and gulf cordgrass (*Spartina spartinae*), Berlandier's fiddlewood (*Citharexylum berlandieri*), texas ebony (*Pithecellobium ebano*) and yucca (*Yucca treculeana*) on higher lomas (Jahrsdoerfer and Leslie 1988; USFWS 1997). According to National Wetland Inventory mapping, the *SpaceX Additional Mitigation Land (TPWD)* consists of estuarine, intertidal, unconsolidated shore, irregularly flooded wetland.

Description of Historic and Existing Hydrology

The SpaceX parcels to be donated to TPWD are located in the within South Laguna Madre watershed, which is within the Bahia-Grande Brownsville Ship Channel watershed, a 363-square mile subwatershed to the Southwestern Texas Coastal Basin. South Bay is directly adjacent and to the west of the Port Mitigation Land utilized in the initial 404 Permit. South Bay is an inland bay along the Gulf of Mexico located within the Laguna Madre hypersaline lagoon system and is the southernmost bay in Texas. South Bay is separated from the Gulf of Mexico by Brazos Island. On the northern boundary of South Bay is an inlet where water flows freely from South

Bay into the Brownsville Shipping Channel, which connects the Port of Brownsville to the Gulf of Mexico. On the southern end of South Bay, is Boca Chica Bay where Boca Chica State Park is located. Boca Chica Bay, is a subdelta of the Rio Grande (FAA, 2014).

According to National Wetland Inventory mapping, the SpaceX parcels to be donated to TPWD land generally consist of upland and estuarine, intertidal, unconsolidated shore, and irregularly flooded wetland.

Soil Conditions

Based on the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) web soil survey, the soil underlying the SpaceX parcels to be donated to TPWD is primarily Mustang fine sand, saline.

2.5 Determination of Credits

SpaceX cannot mitigate impacts to Waters of the U.S. through credit purchase based on the unavailability of credits. In coordination with the USACE, SpaceX there proposes preservation in order to offset unavoidable impacts to Waters of the U.S. associated with the construction of the proposed project. The total compensatory mitigation ratio will be 78:1 (6.4-acre donation). The transfer of the properties will take place within 18 months of the start of construction.

2.6 Mitigation Work Plan

No additional impacts to Waters of the U.S. are anticipated as a result of establishing the mitigation sites. The sites consist of currently functioning wetland habitat and upland vegetation. No grading, planting, soil management, erosion control measures or non-native plant species controls are therefore necessary or included in this plan.

2.7 Maintenance Plan

As previously discussed, SpaceX will donate the mitigation land to TPWD. SpaceX would therefore not be responsible for the ongoing maintenance of the property.

2.8 Performance Standards

As previously discussed, SpaceX will donate the mitigation land to TPWD. SpaceX would therefore not be responsible for developing or tracking mitigation performance standards.

2.9 Monitoring Requirements

As previously discussed, SpaceX will donate the mitigation land to TPWD. SpaceX would therefore not be responsible for the ongoing monitoring of the property.

2.10 Long-Term Management Plan

As previously discussed, SpaceX will donate the mitigation land to TPWD. SpaceX would therefore not be responsible for the long-term management of the property.

2.11 Adaptive Management Plan

As previously discussed, SpaceX will donate the mitigation land to TPWD. SpaceX would therefore not be responsible for the long-term management of the property.

2.12 Short-term and Long-term Financial Assurances

As previously discussed, SpaceX will donate the mitigation land to TPWD. SpaceX would therefore not be responsible for providing short and long-term financial assurances.

3.0 References

- FAA 2014. Final Environmental Impact Statement, SpaceX Texas Launch Site. Volume I, Executive Summary and Chapters 1-14.
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