

DRAFT ENVIRONMENTAL ASSESSMENT
ALAMITO AND TERNEROS SEDIMENT AND VEGETATION
REMOVAL BELOW PRESIDIO FLOOD CONTROL PROJECT,
PRESIDIO, TEXAS



Prepared by:

United States Section, International Boundary and Water Commission

El Paso, Texas

August 2016

COVER SHEET
**Final Supplemental Environmental
Assessment and
Finding of No Significant Impact**

**Alamito and Ternereros Sediment and
Vegetation Removal below Presidio
Flood Control Project, Presidio, Texas**

Lead Agency: United States Section, International Boundary and Water
Commission

Preferred alternative: Alamito and Ternereros Sediment and Vegetation Removal below
Presidio Flood Control Project on Rio Grande

Report Designation: Environmental Assessment (EA)

Abstract: The USIBWC is considering removing accumulated alluvial sediment and vegetation from within the U.S. floodplain of the Rio Grande below the Presidio Flood Control Project between the confluences of Brito and Ternereros Creeks. The Preferred Alternative would remove accumulated alluvial sediment at Alamito and Ternereros Creeks for disposal at an adjacent location and remove vegetation from the floodplain from Brito Creek to Ternereros Creek, reducing the projected flood water surface elevation in the lower Presidio Flood Control Project.

The Environmental Assessment evaluates potential environmental impacts of the No Action Alternative and the Preferred Alternative. Two additional alternatives were considered and evaluated but found to have less beneficial effect to the flood margin of safety in the Presidio Flood Control Project. Potential impacts on natural, cultural, and other resources were evaluated. A Finding of No Significant Impact has been prepared for the Preferred Alternative based on a review of the facts and analyses contained in the Environmental Assessment.

FINDING OF NO SIGNIFICANT IMPACT

Alamito and Ternereros Sediment and Vegetation Removal below Presidio Flood Control Project, Presidio, Texas

LEAD AGENCY: United States Section, International Boundary and Water Commission, United States and Mexico (USIBWC).

BACKGROUND

The Presidio Flood Control Project was authorized by the 1970 Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and Colorado River as the International Boundary. The Presidio Flood Control Project (PFCP) was constructed in 1975 to protect agricultural lands in the Presidio-Ojinaga valley from frequent flooding and to establish the international boundary.

As a consequence of severe flooding in the PFCP in September 2008, the USIBWC prepared an Environmental Impact Statement (EIS) to improve flood control and partially relocate levees in the PFCP Presidio County, Texas. This work was completed in 2014; however during scoping for the EIS the Presidio community identified the accumulation of alluvial sediment and vegetation below the PFCP as concern for future flood events. Subsequent hydraulic modeling completed in 2016 confirmed that accumulated sediment and vegetation results in higher flood Water Surface Elevations (WSE) in the lower PFCP during flood events.

ALTERNATIVE ACTIONS

A No Action Alternative for the Brito Creek to Ternereros Creek reach of the Rio Grande floodplain would retain the existing configuration of sediment and vegetation in the floodplain and associated level of flood protection presently in the lower PFCP. Under the 25 year storm flood event (42,024 cubic feet per second) the flood water surface elevation would be increased in the lower PFCP with risks to personal safety and potential property damage.

Implementation as needed for a period of five years of the preferred alternative combining sediment and vegetation removal would decrease the projected flood water surface elevation in the modeled reach of 69 river stations by up to 2.33 feet. Sediment would be removed from the alluvial material in the beds of both Alamito and Ternereros creeks at their confluence and adjacent to the present base flow bed of the Rio Grande. Removed sediment would be hauled to an adjacent location for disposal and final grading. Sediment removal from the bed or banks of the present base flow Rio Grande is not proposed. The current distribution of vegetation is a result of the present occurrence of alluvial sediment in the Rio Grande floodplain and its effect on the distribution of flow velocities during flood events. Removal of vegetation in combination with the proposed sediment removal will increase Rio Grande flood conveyance capacity and achieve the projected reduction of flood water surface elevations in the lower PFCP.

SUMMARY OF FINDINGS

Pursuant to National Environmental Policy Act (NEPA) guidance (40 Code of Federal Regulations 1500-1508), the President's Council on Environmental Quality issued regulations for NEPA implementation which included provisions for both the content and procedural aspects of the required Environmental Assessment. The USIBWC completed an EA of the potential environmental consequences of sediment and vegetation removal to meet current requirements for flood control in the lower PFCP. The EA, which supports this Finding of No Significant Impact, evaluated the Preferred Alternative that would satisfy the purpose and need and the No Action Alternative.

SEDIMENT AND VEGETATION REMOVAL EVALUATION

NO ACTION ALTERNATIVE

The No Action Alternative would retain the current configuration of the Rio Grande floodplain below the PFCP, with no impacts to biological and cultural resources, and water resources. In terms of flood protection, however, current containment capacity in the lower PFCP under the No Action Alternative may be reduced during Rio Grande flooding under severe storm events, with associated risks to personal safety and property.

PREFERRED ALTERNATIVE

Biological Resources

Impacts would occur to riparian vegetation over the 1.5 mile stretch on only the US bank of the Rio Grande. The removal would affect approximately 200 acres of native and non-native riparian vegetation. A 5 foot wide strip of vegetation along the present bank of the river would remain.

Cultural Resources

Improvements to the floodplain are not expected to adversely affect known archaeological or historical resources. The preferred alternative would disturb only areas affected by the meandering of the river within the established floodplain. Adjacent disposal areas would be established in locations with no cultural resources present.

Water Resources

Improvements to the floodplain would increase flood margin of safety in the lower PFCP for the design flood event water surface elevation and would not affect other water resources.

Environmental Justice and Other Resources

No significant impacts are anticipated to environmental justice due to the minimal economic effect of the proposed action. USIBWC determined that land use and environmental health issues, such as air quality and noise, were negligible and are not further evaluated.

DECISION

Based on my review of the facts and analyses contained in the Environmental Assessment, I conclude that implementation of the Preferred Alternative to remove sediment from Alamito and Ternereros Creeks and vegetation along the Rio Grande between Brito and Ternereros Creeks over a period of five years would not have a significant impact. Accordingly, requirements of the National Environmental Policy Act and regulations promulgated by the Council on Environmental Quality are fulfilled and an environmental impact statement is not required.

Edward Drusina, P.E.
Commissioner
International Boundary and Water
Commission, United States Section

Date

**DRAFT ENVIRONMENTAL ASSESSMENT:
ALAMITO AND TERNEROS SEDIMENT AND
VEGETATION REMOVAL BELOW PRESIDIO
FLOOD CONTROL PROJECT, PRESIDIO,
TEXAS**

Prepared by:

**UNITED STATES SECTION, INTERNATIONAL BOUNDARY
AND WATER COMMISSION
UNITED STATES AND MEXICO**

August 2016

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ACRONYMS AND ABBREVIATIONS

APE	Area of potential effect
DDT	dichlorodiphenyltrichloroethane
cfs	Cubic feet per second
CFR	Code of Federal Register
CWA	Clean Water Act
CY	Cubic yard
EA	environmental assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEM	Field Environmental Monitor
FEMA	Federal Emergency Management Agency
HEC-RAS	Hydraulic Engineering Center - River Analysis System
LJRD	La Junta de los Rios District
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

PFCP	Presidio Flood Control Project
ROD	Record of Decision
RS	River Station
EA	Environmental Assessment
SHPO	State Historical Preservation Officer
T&E	threatened and endangered
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USIBWC	International Boundary and Water Commission, United States Section
WSE	Water Surface Elevation

SECTION 1 PURPOSE OF AND NEED FOR ACTION

1.1 BACKGROUND OF THE PRESIDIO FLOOD CONTROL PROJECT

The International Boundary and Water Commission, United States Section (USIBWC) has identified the need to make improvements to the conveyance capacity of the Rio Grande River immediately downstream of the Presidio Flood Control Project (PFCP). The USIBWC published the final *Environmental Impact Statement (EIS) for Flood Control Improvements and Partial Levee Relocation Presidio Flood Control Project* in February 2010 (USIBWC 2010). The 2010 EIS described the flood control improvements that were needed as a result of damage to the project from flooding in 2008. The Record of Decision (ROD) was signed in March 2010 by USIBWC Commissioner Edward Drusina. Construction of the levee improvements was completed in the PFCP in October 2014.

The PFCP extends from the urbanized area of Presidio and Ojinaga to a point upstream of the confluence of Brito Creek with the Rio Grande. Alamito, Brito, and Ternereros Creeks enter into the Rio Grande downstream of the PFCP (Figure 1.1).

Figure 1.1 Project Area



1.2 PURPOSE AND NEED

Sediment carried during large storms by Alamito, Brito, and Ternereros Creeks has deposited in the Rio Grande, and vegetation has established in the sandbars during low flows. In the 2009 to 2010 EIS scoping meetings, residents of surrounding communities raised concerns about the sediment and vegetation condition of the river immediately below the flood control project. The EIS identified the issue but did not include analysis because the area was outside of the geographic scope of the PFCP improvements and levee relocation.

In 2016, USIBWC completed an updated hydraulic model in HEC-RAS that included Alamito and Ternereros Creeks. The updated model indicates sediment and vegetation in the Rio Grande immediately below the PFCP does impact the flood capacity of the lower PFCP.

In addition, the Rio Grande channel and the international boundary have migrated since the 1980s due to accumulation of alluvial sediment at the confluence of Alamito and Ternereros Creeks, as documented in USIBWC recent international boundary mapping efforts.

The USIBWC prepared this Environmental Assessment (EA) to analyze alternatives to maintain flood capacity and increase flood conveyance of the PFCP by addressing vegetation and sediment along the Rio Grande River between Alamito and Ternereros Creeks immediately downriver of the PFCP. The USIBWC used the results of the updated hydraulic models to develop the alternatives analyzed in this EA.

The objectives of the alternatives are to:

- 1) Maintain the design flood capacity and flood conveyance of the PFCP by addressing the accumulated sediment and vegetation downstream of the PFCP for a period of five years; and
- 2) Ensure the international boundary does not further migrate as a result of the river meandering around accumulated sediment and vegetation downstream of the PFCP.

1.3 SCOPE OF THE ENVIRONMENTAL REVIEW

Federal agencies are required to take into consideration the environmental consequences of proposed and alternative actions in the decision-making process under the National Environmental Policy Act (NEPA) of 1969, as amended. The USIBWC regulations for implementing NEPA are specified in *Operational Procedures for Implementing Section 102 of the National Environmental Policy Act of 1969, Other Laws Pertaining to Specific Aspects of the Environment and Applicable Executive Orders* (46 FR 44083, September 2, 1981). These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

This EA identifies and evaluates the potential environmental consequences that may result from implementation of two alternatives including the Preferred Alternative and the No Action alternative. The following resource areas are analyzed for potential environmental consequences: biological resources, cultural resources, water resources, and environmental

justice. USIBWC determined that land use and environmental health issues, such as air quality and noise were negligible and are not evaluated. Due to similar demographics and income in the project area, the proposed action is not expected to result in environmental justice impacts.

Analyses of environmental resources for the affected environment and environmental consequences are based on a potential impact corridor extending from the end of the existing levee system at Brito Creek to a point south of adjacent agricultural fields approximately 2,700 feet downstream of Terneros Creek. Analyses of environmental consequences also include potential indirect impacts to the river corridor and the region depending on the resource and its relationship to the preferred alternative and the no action alternative.

SECTION 2 DESCRIPTION OF PROPOSED ALTERNATIVES

2.1 HYDRAULIC MODEL

The reach of the Rio Grande considered here is between approximately modeled River Station (RS) 128 and RS 55 which includes on the United States (U.S.) side, the confluences with the Rio Grande of Brito, Alamito and Terneros Creeks. Based on community concern a hydraulic model of this reach of the Rio Grande was developed using the U.S. Army Corps of Engineers' Hydraulic Engineering Center – River Analysis System (HEC-RAS) model. The model area corresponding with River Stations 51 to 92 is shown in figure 2.1. The model consists of series of section lines across the Rio Grande channel at an interval of approximately 1,640 feet. The model profiles are sequentially numbered from lower to higher moving upstream. The model profiles in Figure 2.1 and Table 2-1 are identified as River Stations (RS) 51 through 92. At an assumed flood flow of 42,024 (25-year event) cubic feet per second (cfs), a variety of scenarios including existing sediment and vegetation conditions and combinations of various sediment volume and vegetation area reductions were simulated. The results were measured in terms of computed maximum net change in water surface elevation for each scenario including existing conditions. The modeled scenario and the resulting changes to water surface elevations (WSEL) are summarized in the Table 2-1. From this effort the alternatives for analysis in this EA were developed including the no action alternative based on no change to existing conditions.

Figure 2.1 Model River Stages

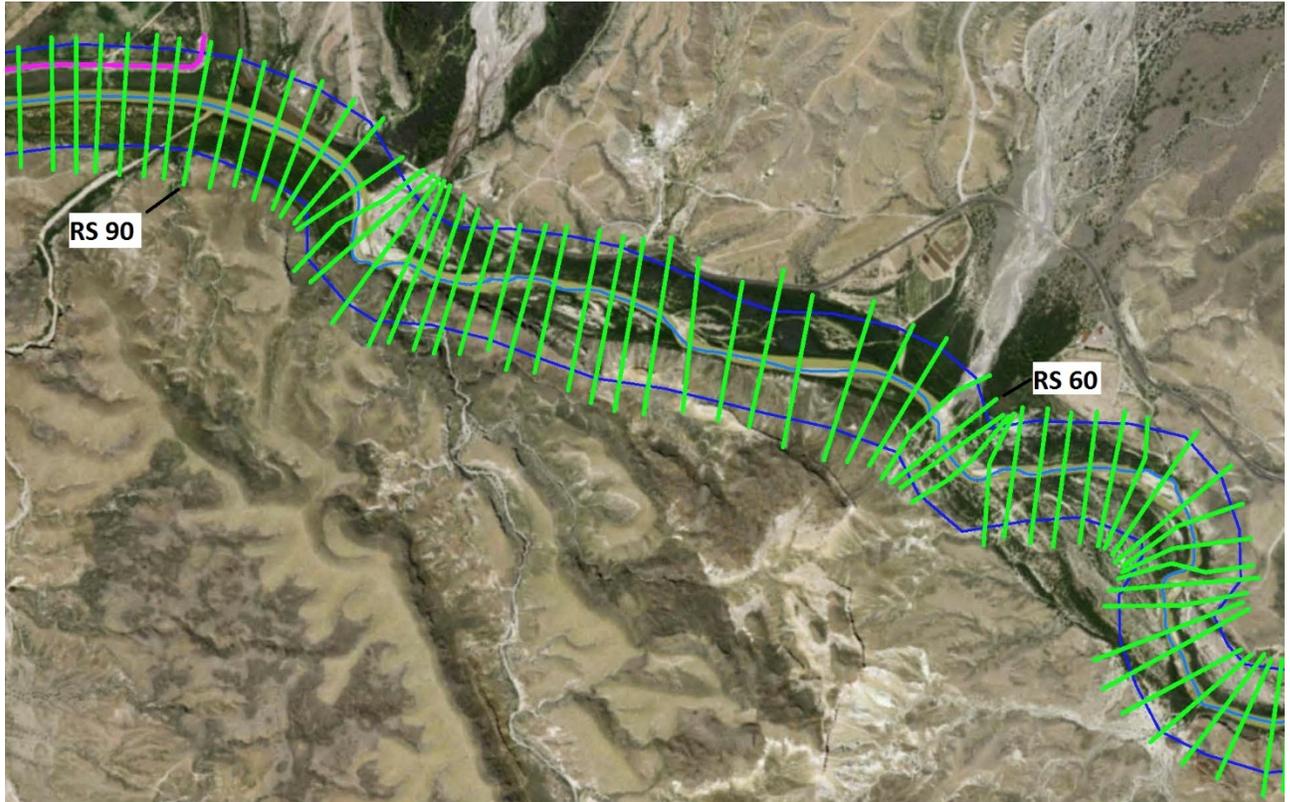


Table 2-1 Modeled Scenarios Summary

Scenarios	River Stations (RS) range with WSEL reduction	Maximum WSEL reduction (feet)
No Action	None	0.0
Vegetation Removal from Brito Creek confluence to Terneros Creek (RS 90- RS 61) (+/-200 acres)	RS128-RS55 (3.73 miles)	1.47
Alamito Creek Delta (168,642 Cubic Yards (CY)) and Terneros Creek Delta (34,586 CY) Sediment Removal (Total 203,228 Cubic Yards)	RS121-RS59 (3.71 miles)	2.59
Alamito Creek Delta (168,642 CY) and Terneros Creek Delta (34,586 CY) Sediment Removal (Total 203,228 Cubic Yards) plus Vegetation Removal from Brito Creek Confluence to Terneros Creek (RS 90 - RS 61) (Preferred Alternative)	RS128-RS59 (4.09 miles)	2.33

2.2 VEGETATION AND SEDIMENT REMOVAL PREFERRED ALTERNATIVE

The preferred alternative combining sediment and vegetation removal would decrease the projected flood water surface elevation in the modeled reach of 69 river stations by up to 2.33 feet. Sediment would be removed from the alluvial material in the beds of both Alamito and Ternereros creeks at their confluence and with the Rio Grande on U.S. side. Removed sediment would be hauled to an adjacent location for disposal and final grading. Sediment removal from the bed or banks of the present base flow Rio Grande is not proposed. The current distribution of vegetation is a result of the occurrence of alluvial sediment in the Rio Grande floodplain and its effect on the distribution of flow velocities during flood events. Removal of vegetation between Brito and Ternereros Creeks in combination with sediment removal as needed for a period of five years will increase Rio Grande flood conveyance capacity and achieve the projected reduction of flood water surface elevations in the lower PFCP.

The preferred alternative areas of sediment removal and vegetation removal are shown Figures 2.2 and 2.3 and the adjacent sediment disposal sites are shown in figures 2.4, 2.5 and 2.6.

Figure 2.2 Sediment Removal Areas

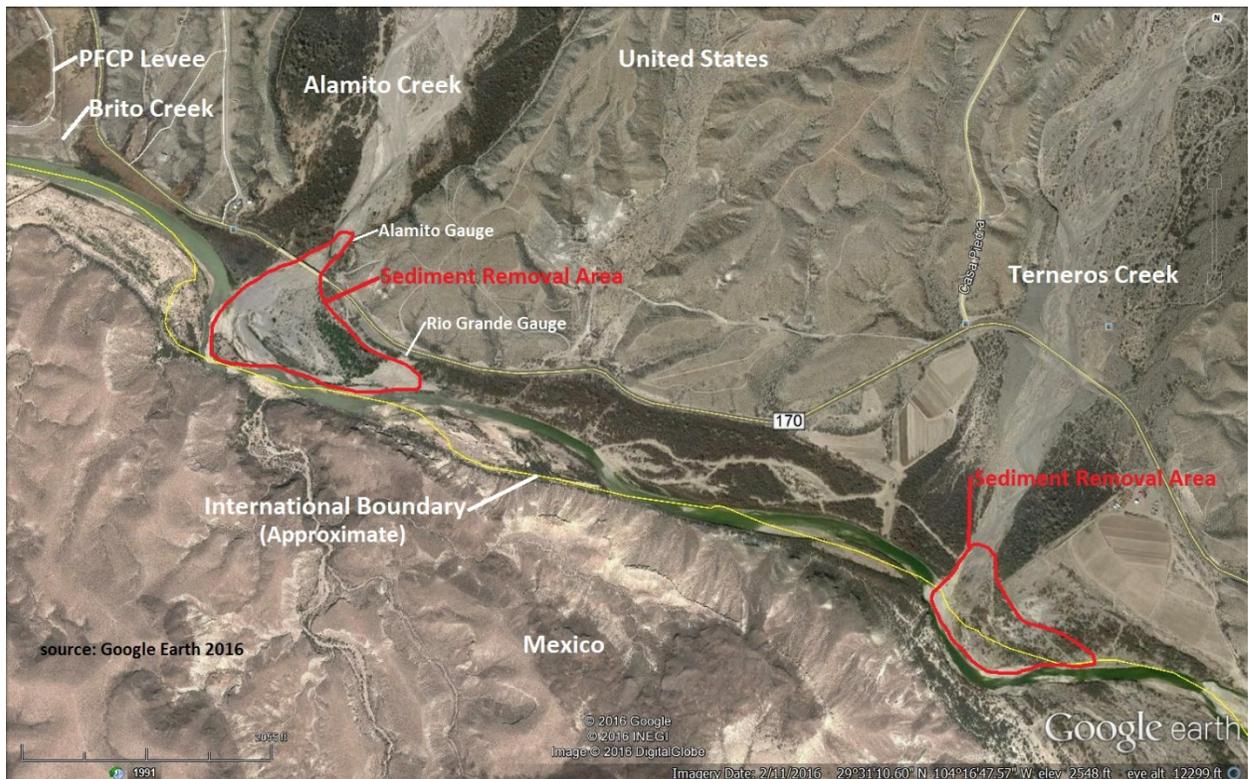


Figure 2.3 Vegetation Removal Area

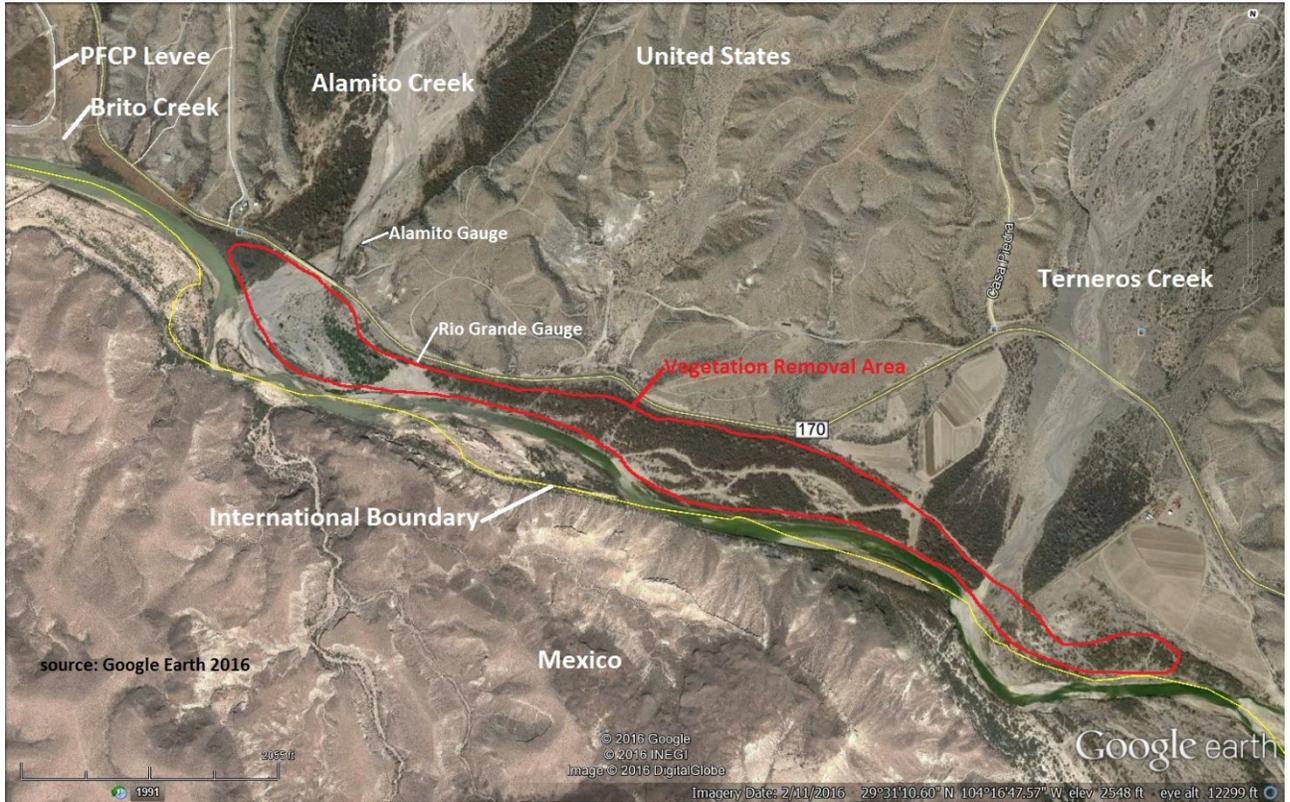


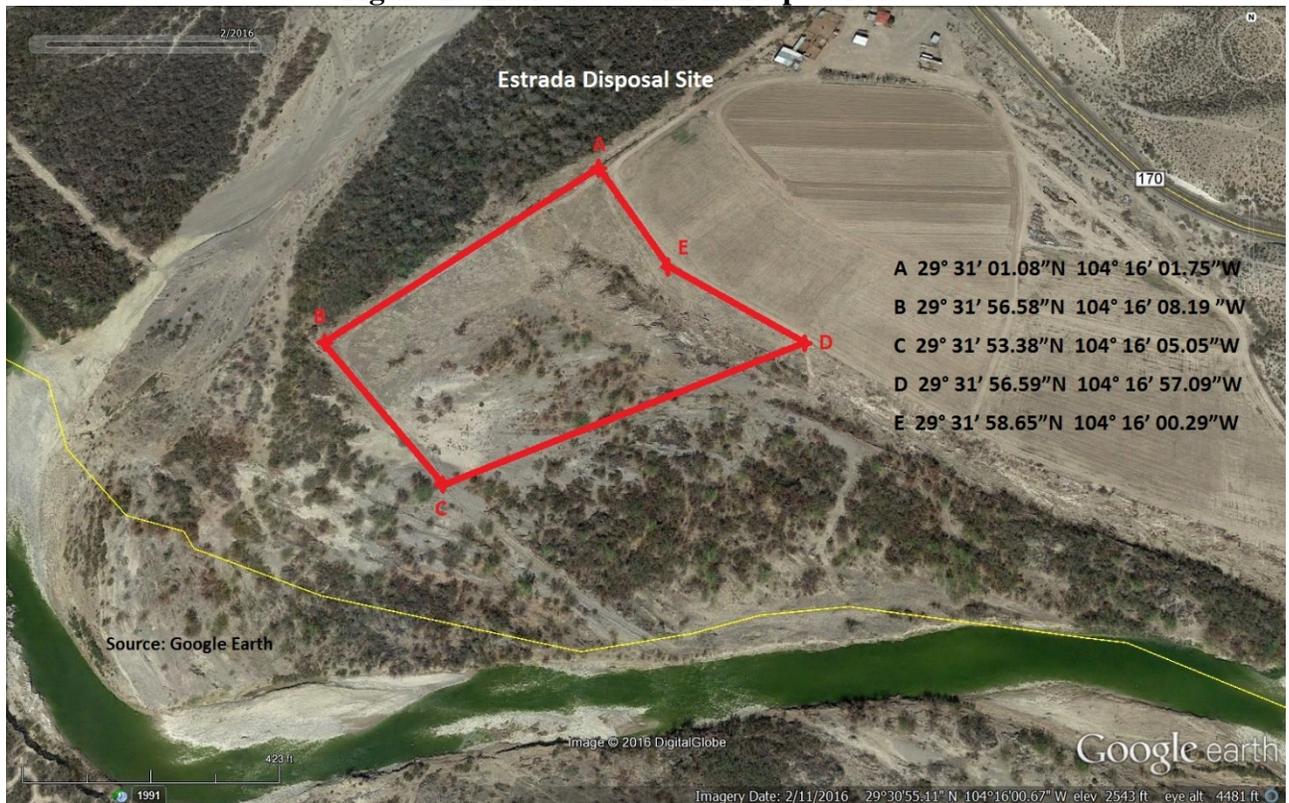
Figure 2.4 Sediment Disposal Sites



Figure 2.5 Nieto Sediment Disposal Site



Figure 2.6 Estrada Sediment Disposal Site



2.3 NO ACTION ALTERNATIVE

The no action alternative will continue the current situation and result in no reduction to the elevated flood WSEL in the lower PFCP and at the confluences of Brito, Alamito and Ternereros Creeks. Additionally, the further accumulation of sediment will expand suitable conditions for increase in vegetation distribution and density further impeding flood flow and likely resulting in increasing flood flow water surface elevations in the PFCP through time.

2.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED

Simulation with the hydraulic model included two additional scenarios that represent partial implementation of the preferred alternative. The model results indicate that these two scenarios would result in lesser reductions in flood WSEL in the PFCP than the preferred alternative. Furthermore because sedimentation and vegetation are mutually reinforcing effects, the duration of the benefit of these scenarios individually would likely be less than the duration of benefit of the preferred alternative. As a result these modeled scenarios which are described below are not analyzed in this EA.

2.4.1 Vegetation Removal Scenario

The vegetation removal scenario was analyzed in the hydraulic model both in combination with sediment removal and a sole action. On its own, the vegetation removal scenario will result in a maximum water surface elevation reduction of up to 1.47 feet over modeled reach of 73 river stations (3.73 miles). Haul routes and selection of sites for sediment disposal and final grading would not be needed under the vegetation removal alternative.

2.4.2 Sediment Removal Scenario

The sediment removal scenario was also analyzed in the hydraulic model in combination with the vegetation removal and as a sole alternative. The hydraulic effect of sediment removal by itself is projected to be a maximum reduction of flood water surface elevation of up to 2.59 feet over modeled reach of 62 river stations (3.71 miles). This option would require the hauling and grading of the spoil material to an adjacent disposal site most likely located on adjacent private land.

2.5 SUMMARY COMPARISON OF ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE AND NO ACTION ALTERNATIVE

No Action Alternative

The No Action Alternative would retain the present distribution of alluvial sediment and vegetation with no impacts to biological and cultural resources, land use, community resources, or environmental health issues. In terms of flood protection, however, current containment capacity under the No Action Alternative may be insufficient to fully control Rio Grande flooding under severe storm events, with associated risks to personal safety and property.

Preferred Alternative

The primary focus of the preferred alternative is to address known or potential flood control deficiencies in the PFCP. Key features of the preferred alternative implemented over five years include reducing the projected flood WSEL by removing accumulated alluvial sediment and vegetation. Table 2-2 summarizes potential environmental consequences of the proposed improvements. The proposed action would provide improved flood protection in the lower PFCP.

Table 2-2 Summary of Environmental Resources Affected by the Alternatives Including the No Action Alternative.

ENVIRONMENTAL RESOURCE	EFFECTS OF THE PREFERRED ALTERNATIVE	EFFECTS OF NO ACTION ALTERNATIVE
Biological Resources		
A. Vegetation and Habitat	Not Significantly Affected	Not Affected
B. Wildlife	Not Significantly Affected	Not Affected
C. Threatened and Endangered Species	Not Significantly Affected	Not Affected
Cultural Resources		
A. Archaeological and Historic Resources	Not Affected	Not Affected
Water Resources		
A. Water Quality	Not Affected	Not Affected
Environmental Justice		
A. Socioeconomics	Not Significantly Affected	Not Affected

SECTION 3 AFFECTED ENVIRONMENT

This section describes resources in the potential area of influence of the project. For more detailed information please refer to the USIBWC 2010 EIS. Only those components of the environment that could be affected by the project are discussed. The consequences of the Alternatives and No Action are discussed immediately after the description of each resource component.

3.1 BIOLOGICAL RESOURCES

3.1.1 Vegetation

The Trans-Pecos region of the Chihuahuan Desert is historically a mosaic of grasslands and desert shrublands. The grassland areas are dominated by tobosa, black grama, and other grass species. The dominant desert shrub species are creosote bush, tarbush, or a mixture of the two. Other shrub species and succulents are also present in this area. In areas where washes or rivers are present, willows, cottonwood, and mesquite dominate riparian vegetation. In the recent past, riparian areas have been degraded, and the invasive salt cedar has attained dominance in many locations (USIBWC 2010).

Based on literature review and field surveys, the following four vegetation communities were identified as occurring within the vegetation survey corridor: Desert scrub/woodland community; herbaceous community; wetland/riparian community; and agricultural/rangeland areas, as described below. For the analyses, the broad categories are used (*e.g.*, wetland and riparian areas are combined into a single category).

Desert Scrub Community

Mixed desert scrub - The upland areas from the Rio Grande are characterized by vegetation dominated by creosote bush and in some places tarbush. Other species may occur in the vegetation community, including mesquite, yucca, lotebush, ocotillo, javelina bush, catclaw, white-thorn acacia, whitebrush, ceniza, althorn, guayacan, pricklypear, pitaya, and tasajillo (USIBWC 2010). In areas where grazing or other disturbance has occurred, snakeweed and Russian thistle (tumbleweed) are present. All scientific names are in the *Updated Biological Resources Evaluation*, prepared in support of the 2010 EIS (USIBWC 2010). *Woodland* – Woodlands in the area are characterized by larger woody species, generally dominated by mesquite, salt cedar, and retama (palo verde). Historically, there may have been other species in the woodland areas but changes in water (*e.g.*, lowered water tables) and agriculture (*e.g.*, clearing wooded areas for agriculture) has reduced the extent of this vegetation in the area and altered the species composition.

Wetland/Riparian Community

Wetlands – Wetlands in the area are generally characterized by herbaceous species with woody species present on the fringes of the wetlands. Wetlands are often located within and adjacent to resacas (river channels that have been cut off from the main river channel) and within historic river channels. The emergent wetland areas are characterized by common reed, cattail, some sedges, and occasionally, Johnsongrass. The fringes of the wetlands in the region generally include

mesquite and salt cedar. The scrub-shrub wetlands are characterized by woody vegetation less than 20 feet tall, and species present may include mesquite, desert willow, and salt cedar (USIBWC 2010).

Riparian communities – Riparian areas in the region historically included cottonwood, willow, desert willow, fourwing saltbush, and acacia. Two species of the invasive salt cedar have gained dominance in many riparian areas, and one species (*Tamarix ramosissima*) generally is of smaller stature and very close to water sources, and the second species, Athel tamarisk (*Tamarix aphylla*) are often the largest trees in the landscape and tend to be in more upland areas (USIBWC 2010).

3.1.2 Wildlife

A number of wildlife species are present in the region. The Rio Grande is a major migratory flyway for numerous bird species, particularly waterfowl, shore birds, and those associated with riparian habitats. Open floodplain areas also provides suitable hunting areas for raptors. Of the variety of birds found in the area, some common species include the Gambel's quail, red-winged blackbird, western kingbird, gadwall, mourning dove, scaled quail, and turkey vulture. Scientific names of species are included in the *Biological Resources Evaluation* (USIBWC 2010), prepared in support of the 2010 EIS.

The mule deer and pronghorn antelope are large game animals known to occur in the region. Other non-game mammals include the coyote, western spotted skunk, striped skunk, desert cottontail, black-tailed jackrabbit, porcupine, raccoon, ringtail, badger, and several species of bats. Furbearing mammals include the bobcat, mountain lion, kit fox, gray fox, long-tailed weasel, beaver, nutria, and muskrat. Small rodents may include desert pocket gopher, yellow-faced pocket gopher, kangaroo rats, woodrats, pocket mice, and Texas antelope squirrel (USIBWC 2010).

Reptiles and amphibian species have not been well studied in the area. Reptile species that may occur in the area include Texas banded gecko, reticulated gecko, greater earless lizard, spiny lizards, whiptail lizards, Trans-Pecos ratsnake, western hooknose snake, whipsnakes, and western diamondback rattlesnake. Amphibian species that may occur in the area include tiger salamander, several toad species, Couch's spadefoot, western spadefoot, plains spadefoot, and Great Plains narrowmouth toad (USIBWC 2010).

Field surveys of the PFCP vegetation were conducted on March 10 through March 12, July 6 through July 9, August 10 through August 12, and September 29 through October 1, 2009. The field surveys of vegetation largely determined wildlife habitats for common species that may occur in the area. Focused bird surveys were conducted for this project on July 7 and 8, and September 29 through October 1, 2009. The species observed during the bird surveys are included in the *Updated Biological Resources Evaluation* (USIBWC 2010).

The aquatic ecosystems are restricted to the Rio Grande and the tributaries that flow into the Rio Grande. Downstream of the confluence with the Rio Conchos at Presidio, the Rio Grande is a permanent water body. In this region of the Rio Grande and its tributaries, the fish fauna include common species such as common carp, river carpsuckers, characins, bullhead and channel

catfishes, gizzard shad, red shiner, and green sunfish. Aquatic macro- invertebrates in the Rio Grande and tributaries near the PFCP include mayfly and dragonfly larvae, beetles, insects from the order diptera, and caddisflies (USIBWC 2010).

Aquatic habitats in the area are likely affected by the levees of the upstream PFCP, because levees contribute to floodplain constriction and habitat degradation for aquatic and riparian communities because of changes in flow regime. Levees functionally disconnect the river from most of the floodplain and associated wetlands. Constriction of the river and disconnection from the floodplain results in the elimination of shallow, low, and no velocity habitats required by many aquatic and riparian species. The effects of levees on these habitats and species extend both upstream and downstream of the levees. Within the project area, accumulation of alluvial sediment and vegetation also alter the flow regime, and therefore, may alter the aquatic communities (USIBWC 2010).

3.1.3 Threatened, Endangered and Special Status Species

The potential presence of special status species habitat was analyzed based on vegetation survey data and habitat requirements of species potentially occurring in the project area that are protected under federal and state regulatory frameworks or otherwise considered of conservation concern. This information was used to assess the likelihood of special status species occurrence based on the following assumptions:

1. The likelihood of a species occurring within the project area can be substantially determined from agency contacts, species life history descriptions, and literature reviews.
2. Analyses of plant community types are sufficient for determining whether suitable special status species habitat occurs in the project area.
3. Although there is a very small likelihood of actually observing a rare species in the course of a survey, suitable habitat can be identified in the field.

USIBWC must comply with the Migratory Bird Treaty Act (MBTA). The MBTA protects migratory birds, their parts, nests, and eggs thereof during their nesting season. The U.S. Fish and Wildlife Service (USFWS) has determined that the nesting season for the region including the RGCP area is March 1 through August 15, and may be extended to September 1 if birds are still nesting. Work will be planned to occur outside of the bird nesting season which is typically from March through August. If work continues into the bird breeding season the areas proposed for disturbance will be surveyed in order to avoid the inadvertent destruction of nests and eggs.

Preferred habitat types for each special status species potentially occurring in Presidio County was compared to the habitat types identified during field surveys to evaluate their likelihood of occurrence.

Based on literature review and field surveys and 2016 consultation with the USFWS, the list of federal listed threatened and endangered (T&E) species, within Presidio county was consolidated

to following list of species with potential habitat in the area, species that are extant, or species that have been observed in the area (USIBWC 2016a).

3.1.4 Identification of Federal Listed Species

U.S. Fish and Wildlife Service identification of Federal listed species is presented in Table 3-4.

Table 3-4 Special Status Species Potentially Present in Project Area

Common Name (<i>Scientific Name</i>)	Federal Status	State Status	Likelihood of Occurrence in Project Area
Rio Grande Silvery Minnow (<i>Hybognathus amarus</i>)	Endangered	Endangered	Potential
Texas Hornshell (<i>Popenaias popeii</i>)	Candidate	Threatened	Potential
Mexican Long-nosed Bat (<i>Leptonycteris nivalis</i>)	Endangered	Endangered	Potential Migrant
Hinkley's Oak (<i>Quercus hinkleyi</i>)	Threatened	Threatened	Potential
Lloyd's Mariposa Cactus (<i>Echinomastus mariposensis</i>)	Threatened	Threatened	Potential
Interior Least Tern (<i>Sterna antillarum athalassos</i>)	Endangered	Endangered	Potential Migrant
Southwestern Willow Flycatcher (<i>Empidonax tralli extimus</i>)	Endangered	Endangered	Potential Migrant
Western Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Threatened	Threatened	Potential Migrant

Source: USFWS 2016 and TPWD 2016

3.1.5 Descriptions of Additional Species of Concern

Chihuahua shiner. The Chihuahua shiner is considered by the USFWS as a species of concern and state listed as endangered. The Chihuahua shiner inhabits channels of large creeks and small to medium rivers, typically in clear, cool water that is often associated with nearby

springs. The Chihuahua shiner often occurs in pools with slight current or riffles over a gravel or sand bottom where vegetation may be present. Threats to the species include damming and irrigation practices, and intermittent dewatering of streams. The species is known from the Rio Grande drainage from near the mouth of the Rio Conchos, and from several small tributaries to the Rio Conchos (Edwards *et al.* 2002). There is possible suitable habitat for the species in the Presidio area. (USIBWC 2010).

American and Arctic peregrine falcon. The American Peregrine Falcon is state listed as endangered. The Arctic Peregrine Falcon is state listed as threatened. Both subspecies were federally listed, but have recovered to the extent that they have been delisted. Both subspecies may be present in west Texas as migrants across the state from northern breeding areas, and both subspecies winter along coastlines farther south. Additionally, some individuals of American peregrine falcon may establish year-round breeding colonies in west Texas. The Peregrine Falcon occupies a wide range of habitat during migration, including urban areas, landscape edges such as lakeshores and barrier islands. Both subspecies are considered low- altitude migrants. Nesting often occurs on cliff ledges, large tree hollows, or other areas with undisturbed wide views close to plentiful prey. Prey for the peregrine falcon are generally other birds. Historical threats to peregrine falcons have been due to pesticide poisoning, but populations have been recovering throughout most of the range. The Peregrine falcon may occur as a migrant in the Presidio area, but there are limited areas for nesting in the project area. (USIBWC 2010).

Common black hawk, gray hawk, zone-tailed hawk. The Common Black Hawk, the Gray Hawk, and the Zone-tailed Hawk are state-listed as threatened. The three hawks occur irregularly along the U.S.-Mexico border in the area of Presidio. The Zone-tailed hawk was recorded during a July 2009 bird survey. These hawk species tend to nest in mature riparian woodlands, and tend to forage in open, arid country. There are limited areas within the Presidio area that would be considered mature riparian woodlands. The mature riparian woodlands that may be present are generally in Mexico. (USIBWC 2010).

3.1.6 Special Status Species Protected under the MBTA

All native birds present within the PFCP are protected under the MBTA. Focused bird surveys were conducted in the PFCP on July 7 through July 8 and September 29 through October 1, 2009. The focused bird survey identified 84 bird species, as described in the *Updated Biological Resources Evaluation* (USIBWC 2010). The MBTA allows for legal hunting of certain species protected under the MBTA, 12 of which were identified within the Presidio FCP (mallard, gadwall, green-winged teal, common moorhen, American coot, Gambel's quail, scaled quail, rock dove, white-winged dove, mourning dove, Inca dove, and common ground-dove). Three non-native species (Eurasian collared dove, house sparrow, and rock dove [feral pigeon]) were identified during the bird surveys, and these species are not protected under the MBTA.

3.2 CULTURAL RESOURCES

3.2.1 Affected Environment

An integral part of the National Historic Preservation Act (NRHP) Section 106 process is the delineation of the area within which archaeological and architectural resources would be affected

or are likely to be affected. The Area of Potential Effect (APE) as defined by 36 Code of Federal Register (CFR) 800.16(d) represents: the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties [*i.e.*, NRHP-eligible resources], if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

3.2.2 Previous Cultural Resources Studies

Three previous cultural resources investigations were conducted to identify resources specifically in the PFCP area and have primarily focused on the identification of archaeological resources. The most recent cultural resources study of the current project area was conducted in support of a Programmatic EIS for several USIBWC flood control projects. The study was an overview including literature review and site files search only (USIBWC 2010).

3.2.3 Archaeological Resources

The Texas Archeological Sites Atlas (2009), the Texas Historic Sites Atlas (2009), and previous investigations of the project area were consulted for information about known archaeological sites that occur in the project area. One previously recorded archeological site, 41PS61 is located of the La Junta de los Rios District (LJRD) located in the project area is at Alamito Creek. The LJRD encompasses a roughly triangular area surrounding the confluence of the Rio Grande and Rio Conchos from Ruidosa to Redford, Texas and to Cuchillo Parado, Chihuahua. The confluence of these two rivers served as a reliable water source for Native Americans throughout history in the otherwise arid Chihuahuan Desert; this geography provided adequate resources for the establishment of mixed agricultural lifeways and the settlement of villages. Spanish explorers entered the area in 1535 to find active farming communities residing in multiple roomed adobe structures. These communities were then used as sites for Spanish missions and forts along the western frontier. The LJRD was listed on the NRHP in 1978. The majority of the current project area roughly parallels the area surrounding Presidio. The current project area may overlap portion of the district, including 41PS61 and possibly a Spanish Mission reported to have been located on Alamito Creek (USIBWC 2010).

3.3 WATER RESOURCES

The project is located within water quality management segment 2306 of the Rio Grande, as defined by Texas Commission on Environmental Quality (TCEQ). Segment 2306 extends from the confluence of the Rio Conchos to the International Amistad Reservoir in Val Verde County. The designated use of the segment is high aquatic life, contact recreation, and public water supply. The most recent surface-water quality data from TCEQ are for 2014 303(d) list. For each segment, surface water quality is monitored and evaluated. Below the confluence of the Rio Grande and Rio Conchos, through Presidio and Ojinaga, to Alamito Creek (Segment 2306, Area 01), water quality information compiled in July 2016 indicates that sulfate, total dissolved solids, and chloride concentrations exceed surface water quality standards. (USIBWC 2016a).

Within the Presidio area, the wetlands are generally associated with resacas. No resacas are present within the project area as the Rio Grande flood plain occurs in incised uplands with limited opportunity for resacas to form. (USIBWC 2010).

3.4 ENVIRONMENTAL JUSTICE

The minority population of Presidio County is approximately 85 percent based U.S. Census Bureau data. Minority populations of Hispanic origin dominate the potential region of influence. (USIBWC 2010).

SECTION 4 ENVIRONMENTAL CONSEQUENCES BY RESOURCE

4.1 BIOLOGICAL RESOURCES

4.1.1 Vegetation

No Action Alternative

No impacts are anticipated, as the current river channel configuration would be retained.

Preferred alternative

Vegetation will be impacted; however, impacts would occur to riparian vegetation over the 1.5 mile stretch on the only the U.S. bank of the Rio Grande. The removal would affect approximately 200 acres of native and non-native riparian vegetation. A five foot wide strip of vegetation along the present bank of the river will be left in place during vegetation removal. Select large diameter trees with significant habitat value may be retained.

4.1.2 Wildlife

No Action Alternative

No impacts are anticipated, as the current river channel configuration would be retained.

Preferred Alternative

A loss of habitat for wildlife would occur under the preferred alternative. Project activities along the river corridor would remove some habitat; however, the removal is limited to riparian habitat removal on the US bank where the alluvial sediment and vegetation removal would occur. Work will be scheduled to occur outside of the bird breeding season which is generally March through August. If work continues into the bird breeding season the areas proposed for disturbance will be surveyed in order to avoid the inadvertent destruction of nests and eggs. A five foot wide strip of vegetation along the present bank of the river will be left in place during vegetation removal to preserve bank stability and provide cover for wildlife at water's edge. Select large diameter trees with significant habitat value may be retained.

4.1.3 Threatened and Endangered Species

No Action Alternative

No impacts are anticipated, as the current river channel configuration would be retained.

Preferred alternative

No T&E species within the river corridor would be adversely affected by the preferred alternative. Work will occur on the existing floodplain corridor and in adjacent upland areas. The herbaceous plant communities present along the levee corridor are dominated by invasive plants and grasses and provides little suitable habitat for T&E species except for the riparian habitat located along the river's edge in the project area. Potential habitat located within the river flood plain will be impacted during removal. T&E species potentially occurring during the removal action will not be permanently impacted. Work will be planned to occur outside of the bird nesting season, from March to October. If work must occur during the nesting season, work will incorporate best management practices approved by USFWS.

4.2 CULTURAL RESOURCES

No Action Alternative

No adverse effects are anticipated, as the current river configuration would be retained.

Preferred alternative

Proposed improvements to river corridor would occur entirely within the floodplain. There are no documented prehistoric sites within the floodplain, therefore, impacts to archaeological properties are not anticipated. However, there is one archaeological site identified which occurs in adjacent uplands and this would be avoided (THC 2016).

4.3 WATER RESOURCES

No Action Alternative

No impacts are anticipated, as the current river configuration would be retained.

Preferred alternative

No impacts are anticipated because no sediment removal activity in the Rio Grande channel is proposed. Sediment removal in Alamito and Terneros Creeks would only occur in dry conditions.

4.4 ENVIRONMENTAL JUSTICE

No Action Alternative

No impacts are anticipated, as the current river configuration would be retained.

Preferred alternative

No significant impacts are anticipated due to the minimal economic effect of the proposed action. The long term improvement to the performance of the PFCP would have a beneficial

economic effect.

4.5 CUMULATIVE IMPACTS

The USIBWC maintains the international boundary, channel and levees in the upstream reach of the Rio Grande in the PFCP. USIBWC is unaware of other actions in the area that would have cumulative impacts on the watershed.

SECTION 5 PUBLIC INVOLVEMENT

5.1 AGENCY COORDINATION

This section discusses consultation and coordination that will occur during the preparation of this document. This includes contacts made during development of the proposed action, other alternatives considered, and preparation of the draft EA. Copies of agency coordination letters are presented in *Appendix C*. Formal and informal coordination will be conducted with the following agencies:

- State Historic Preservation Office (SHPO)
- U.S. Fish and Wildlife Service (USFWS)
- United States Environmental Protection Agency (USEPA), Region 6
- U.S. Army Corps of Engineers (USACE)
- Environmental departments (TCEQ)

5.2 PUBLIC INFORMATION AND REVIEW

In accordance with NEPA, a 30-day review period of the draft EA was provided via a Notice of Availability in the Federal Register, posted on the USIBWC website located at www.ibwc.gov/EMD/EIS_EA_Public-comment.html, and a local mailing (*Appendix C*).

SECTION 6 LIST OF PREPARERS

Name	Agency/Title	Degree	Years of Experience	Role
Gilbert G. Anaya	USIBWC Environmental Protection Specialist	M.S. Environmental Science	26	Reviewer
Kelly Blough	USIBWC Environmental Protection Specialist	B.A. Geology	28	Preparer
Albert Flores	USIBWC Environmental Protection	B.S. Forestry	16	Preparer

	Specialist			
Elizabeth Verdecchia	USIBWC Natural Resources Specialist	M.A.G. Applied Geography	16	Reviewer

SECTION 7 REFERENCES

THC 2016 Concurrence with letter to Mr. Mark Wolf, State Historic Preservation Officer, Texas Historic Commission, Track Number 201609745 July 28, 2016.

TPWD 2016 Federally Listed, State Listed, and Candidate Species in Texas: Nongame and Rare Species Program, Texas Parks and Wildlife Department, Revised July 20, 2016.

USIBWC 2010 Environmental Impact Statement Flood Control Improvements and Partial Levee Relocation, USIBWC Presidio Flood Control Project, Presidio Texas February 2010

USIBWC 2016a Biological Assessment/Evaluation International Boundary and Water Commission Presidio Field Office, Presidio Texas

USIBWC 2016b 2016 Basin Highlights Report Texas Rio Grande Basin Update, International Boundary and Water Commission , U.S. Section, Texas Clean Rivers Program July 2016

USFWS 2016 Letter to Mr. Albert Flores, U.S. International Boundary and Water Commission, Consultation No. 02ETTX0-2016-I-0888 June 24, 2016.

Appendix A Hydraulic Model Summary

(Figures and graphs removed for brevity)



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

FOR INFORMATION

June 28, 2016

MEMORANDUM

TO : Betsabe Diaz, Project Manager, Master Planning Office
THRU : Padinare Unnikrishna, Supervising Civil Engineer, Engineering Services Division
FROM : Apurba Borah, Lead Hydraulic Engineer, Engineering Services Division
SUBJECT : Presidio Sediment and Vegetation Removal Study and Recommendation

The Engineering Services Division (ESD) has completed the hydraulic modeling to study the effect of sediment removal from the mouths of Alamito Creek, and Ternereros Creek, and vegetation removal from the floodplains of the Rio Grande located east of Presidio, Texas. This memorandum summarizes the study and its findings and provides the ESD's recommendation for further action.

Background

Alamito Creek and Ternereros Creek are located approximately 4.4 miles and 5.8 miles respectively, southeast of Presidio in Presidio County, Texas. Flows from Alamito pass through a bridge on FM-170 before joining the Rio Grande approximately 0.15 mile downstream. On the other hand, Ternereros Creek joins the Rio Grande about 1.4 miles downstream of Alamito Creek. There are sediment plugs formed in the Rio Grande at the mouths of Alamito Creek and Ternereros Creek. There is also thick vegetation on the floodplains of Rio Grande between Alamito Creek and Ternereros Creek. The sediment plugs as well as the floodplain vegetation decrease the conveyance efficiency of the Rio Grande and increase water surface elevations (WSEL) causing backwater and potential flooding upstream from the study location. The purpose of this study was to investigate the hydraulic response of the Rio Grande to sediment and vegetation removal from the downstream reach of Presidio/Ojinaga Flood Control Project (POFCP). The lowering of Flood stages along the Rio Grande due to various combination of sediment and vegetation removal plans were analyzed to determine if the levee system could hold design flows (25 year flood) without overtopping.

Hydraulic Modeling

The U.S. Army Corps of Engineers (USACE) HEC-RAS (version 4.1.0) software was used for the hydraulic analysis. Base model (existing condition) cross sections were cut from the 2011 LiDAR data and 2012 manual survey (Figure 1). The cross sections begin upstream of the Rio Concho and Rio Grande confluence and continue downstream past the confluence of Ternereros Creek and Rio Grande (Figure A-2 in Appendix A). The current model geometry

consists of 325 LiDAR cut cross sections encompassing the entire area of the POFCP. Cross section number River Station 1 (RS 1) is at the most downstream end of the model, and the cross section numbers increase in upstream direction, RS 325 being the most upstream cross section. Cross sections upstream of RS 90 (Brito Creek) are within the POFCP areas; the following cross section list provides important features in the model:

RS 325:	Beginning of the hydraulic model
RS 285:	Rio Conchos/Rio Grande Confluence
RS 243.5:	International Bridge
RS 238:	Presidio Flow Gage
RS 210:	Railroad Bridge
RS 90:	Brito Creek
RS 81:	Alamito Creek
RS 73:	Stream Gage
RS 60:	Ternereros Creek
RS 1:	End of the hydraulic model

The steady state hydraulic model was analyzed for twelve (12) different plans including the base plan—existing condition model. All the plans had the normal depth downstream boundary condition (BC) with a slope of 0.00056 in the Rio Grande. For each plan, water surface elevations for the 25-, 50- and 100-year storm events were calculated. The “Base Plan Model” is the existing condition model where Manning’s n values were set to 0.025 and 0.04 for the main channel and floodplain respectively. At the downstream end of the model, floodplain Manning’s n values were set to 0.20 and 0.07 depending on the type of vegetation. In the proposed condition plans, Manning’s n values were reduced from 0.20 to 0.04 where the vegetation was removed. The channel cross sections were also modified to reflect the sediment removal in that part of the channel. It is to be noted that sediment was removed from banks on the U.S. side only.

Results

Detailed results are shown in Table B-1 (see attachment). Except for the Island removal plan downstream from the International Bridge, other sediment and vegetation removal plans were located outside the limit of POFCP areas; however the resulting reduction of flood risk propagated upstream to the POFCP areas.

Results from the hydraulic modeling showed that the removal of vegetation on the U.S. side floodplain alone resulted in 1.47 feet of maximum WSEL reduction compared to the base model—existing project condition. The flood stages were lowered for the river reach that was extended from RS 128 to RS 55; river reach RS 121 to RS 90 falls within the POFCP areas.

Results from the hydraulic modeling also indicated that the impact of sediment removal from

the mouth of either Alamito Creek or Ternereros Creek alone was minimal. However, when both the plans were combined, the flood reduction impact was more pronounced; it resulted in 2.59 feet maximum flood stage reduction from the base model, and flood stage reduction was propagated into the POFCP areas. When considering sediment removal, both the Creeks should be included to have maximum flood reduction impact in the POFCP areas upstream.

Further, the reduction of design flood stages compared to the base model stages were more pronounced for the combination of sediment and vegetation removal plans than the sediment removal plans alone. This is because sediment removal from the creeks may increase channel conveyance efficiency, but during high flow event, flows spread out to the floodplain where vegetation causes backwater effect. Therefore, combination of sediment and vegetation removal plan should be considered to reduce backwater induced flood risk upstream.

Among all the sediment removal plans, the plan containing the 1.4 mile pilot channel between Alamito Creek and Ternereros Creek resulted in the highest flood stage reduction of 5.08 feet, and reduction of backwater induced flood risk propagated up to River Station 161 inside the POFCP areas. This is a costly flood risk reduction option--because of excavation of a large amount of sediments--that may be considered for long term project.

Recommendations

Based on the hydraulic modeling results, ESD recommends the following actions to be taken in order of preference for reducing backwater induced flooding:

1. Remove floodplain vegetation between Alamito Creek and Ternereros Creek on U.S. side.
2. Remove sediments from the mouth of Alamito Creek. Sediments are to be removed from the RS 82 to RS 80; the original and modified cross sections are shown in the attachment. Approximately 168,642 cubic yards of sediment have to be removed to clear up the sediment plug.
3. Remove sediments from the mouth of Ternereros Creek. It is estimated that about 34,586 cubic yards of sediments are to be removed from the RS 60 to RS 58; the original and modified cross sections are shown in the attachment.

Please give me a call at extension 4710 if you have any questions.

Attachment(s):

As stated.

Appendix B Photos of Project Area



Rio Grande Looking Upstream with accumulated sediment and vegetation 18 May 2016



Rio Grande U.S. flood plain with dense vegetation 18 May 2016



Rio Grande facing upstream at Terneros Creek with sediment deposit and increasing vegetation 18 May 2016



Alamito Creek looking upstream with accumulated sediment and IBWC gauge on right bank past bridge 18 May 2016



Sediment Disposal Site looking southeast at location of past quarry activity on Nieto property
12 April 2016

Appendix C Distribution and Coordination

Federal

Federal Emergency Management Agency

National Park Service

Natural Resources Conservation Service

Advisory Council on Historic Preservation

U.S. Army Corps of Engineers

U.S. Border Patrol

U.S. Bureau of Reclamation

U.S. Department of Agriculture

U.S. Department of Interior

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

Federal Emergency Management Agency

U.S. Customs

U.S. House of Representatives

Tribes

Comanche Nation

Kiowa Indian Tribe of Oklahoma

Mescalero Apache Tribe

White Mountain Apache Tribe

Ysleta del Sur Pueblo

Kickapoo Traditional Tribe of Texas

State

Texas Commission on Environmental Quality

Texas Department of Transportation

Texas Historical Commission

Texas Parks and Wildlife Department

Texas Water Development Board

Department of State Health Services

Sul Ross University

Texas Senate

Texas House of Representatives

County

Presidio County

Brewster County

Hidalgo County Irrigation District Number 2

Municipal

Presidio, City

Presidio ISD

Individuals

Organizations

Rio Grande Council of Governments

Environmental Defense Fund

Rio Grande Institute

Sierra Club

Trans Pecos Water Trust

News Media

Appendix D Draft Environmental Assessment Review Comments

Commenting Entity	Subject	Response