Pre-Construction Notification for Nationwide Permit Coverage

June 2015
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# Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>amsl</td>
<td>above mean sea level</td>
</tr>
<tr>
<td>APE</td>
<td>Area of Potential Effects</td>
</tr>
<tr>
<td>BMP</td>
<td>Best Management Practice</td>
</tr>
<tr>
<td>C</td>
<td>Candidate</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CLOMR</td>
<td>Conditional Letter of Map Revision</td>
</tr>
<tr>
<td>COC</td>
<td>Chemical of Concern</td>
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<tr>
<td>DL</td>
<td>De-Listed</td>
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<tr>
<td>E</td>
<td>Endangered</td>
</tr>
<tr>
<td>EMI</td>
<td>Ecosystem Management Inc.</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
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<tr>
<td>FEMA</td>
<td>Federal Emergency Management Administration</td>
</tr>
<tr>
<td>ft</td>
<td>feet</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information System</td>
</tr>
<tr>
<td>GPS</td>
<td>Geographic Positioning System</td>
</tr>
<tr>
<td>GW</td>
<td>Ground Water</td>
</tr>
<tr>
<td>IBWC</td>
<td>International Boundary Waters Commission</td>
</tr>
<tr>
<td>ID</td>
<td>Identification Number</td>
</tr>
<tr>
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</tr>
<tr>
<td>NAD</td>
<td>North American Datum</td>
</tr>
<tr>
<td>NL</td>
<td>Not Listed</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollution Discharge Elimination System</td>
</tr>
<tr>
<td>NWI</td>
<td>National Wetland Inventory</td>
</tr>
<tr>
<td>NWP</td>
<td>Nationwide Permit</td>
</tr>
<tr>
<td>OBL</td>
<td>Obligate</td>
</tr>
<tr>
<td>OHWM</td>
<td>Ordinary High Water Mark</td>
</tr>
<tr>
<td>PSC</td>
<td>Parkhill, Smith &amp; Cooper</td>
</tr>
<tr>
<td>PBA</td>
<td>Parker Brothers Arroyo</td>
</tr>
<tr>
<td>PCN</td>
<td>Pre-Construction Notification</td>
</tr>
<tr>
<td>PDOP</td>
<td>Position Dilution of Precision</td>
</tr>
<tr>
<td>RI</td>
<td>Remediation Investigation</td>
</tr>
<tr>
<td>RRS3</td>
<td>Risk Reduction Standard Number 3</td>
</tr>
<tr>
<td>spp</td>
<td>species</td>
</tr>
<tr>
<td>SWP3</td>
<td>Storm Water Pollution Prevention Plan</td>
</tr>
<tr>
<td>T</td>
<td>Threatened</td>
</tr>
<tr>
<td>TAC</td>
<td>Texas Administrative Code</td>
</tr>
<tr>
<td>TBD</td>
<td>To Be Determined</td>
</tr>
<tr>
<td>TCEQ</td>
<td>Texas Commission on Environmental Quality</td>
</tr>
<tr>
<td>TDS</td>
<td>Total Dissolved Solids</td>
</tr>
<tr>
<td>TPWD</td>
<td>Texas Parks and Wildlife Department</td>
</tr>
<tr>
<td>TRRP</td>
<td>Texas Risk Reduction Program</td>
</tr>
<tr>
<td>TRRR</td>
<td>Texas Risk Reduction Rules</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Name</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>TxDOT</td>
<td>Texas Department of Transportation</td>
</tr>
<tr>
<td>UP</td>
<td>Union Pacific</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corps of Engineers</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>USGS</td>
<td>United States Geological Survey</td>
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1. Introduction

1.1. Project Contacts

Table 1-1. Project Personnel Contact Information

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Role</th>
<th>Contact Number</th>
<th>E-mail Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roberto Puga</td>
<td>Project Navigator LTD</td>
<td>714-388-1800</td>
<td><a href="mailto:rpuga@projectnavigator.com">rpuga@projectnavigator.com</a></td>
</tr>
<tr>
<td>(Client)</td>
<td>Texas Custodial Trust-Trustee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scott Walker</td>
<td>Senior Project Ecologist</td>
<td>512-370-3864</td>
<td><a href="mailto:Scott.Walker@arcadis-us.com">Scott.Walker@arcadis-us.com</a></td>
</tr>
<tr>
<td>(Client Agent)</td>
<td>(Malcolm Pirnie)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scott Brown</td>
<td>Project Manager (Malcolm Pirnie)</td>
<td>602-438-0883</td>
<td><a href="mailto:Scott.Brown@arcadis-us.com">Scott.Brown@arcadis-us.com</a></td>
</tr>
<tr>
<td>Corey Zorn</td>
<td>Senior Engineer (Malcolm Pirnie)</td>
<td>602-438-0883</td>
<td><a href="mailto:Corey.Zorn@arcadis-us.com">Corey.Zorn@arcadis-us.com</a></td>
</tr>
<tr>
<td>Doug Solon</td>
<td>Field Supervisor (Malcolm Pirnie)</td>
<td>915-603-1015</td>
<td><a href="mailto:Douglas.Solon@arcadis-us.com">Douglas.Solon@arcadis-us.com</a></td>
</tr>
</tbody>
</table>

1.2. Purpose and Need

This notification is a resubmittal of a previously authorized Nationwide Permit (NWP) 27 action submitted in September 2012 (Action No. SPA-2011-00380-LCO). Due to the scope and size of the activity coupled with additional site information discovered during construction, proposed and actual impacts to Waters of the U.S. differ from those originally stated and construction is still ongoing. In addition, recent impacts to wetlands warrant resubmittal for authorization under NWP 27. Restoration and re-vegetation of the affected areas detailed within this notification is anticipated to be complete by the end of 2015 to early 2016. Upon completion of restoration, monitoring and reporting will commence as mandated by previously authorized Special Condition 1.

The following activities are proposed in order to support continued implementation of soil and surface/groundwater remediation activities to allow for future redevelopment of the Former ASARCO Smelter Site (Site) as part of an approved Texas Commission on Environmental Quality (TCEQ) work plan developed under the Texas Risk Reduction Rules (TRRR) (30 Texas Administrative Code Chapter 335, Subchapter S), Risk Reduction Standard Number 3 (RRS3) for non-residential (commercial/industrial) property use. RRS3 requires media cleanup to be protective of human health and the environment and provides closure/remediation with controls (i.e., remove, decontaminate, and or/control to medium-specific concentrations). The Texas Custodial Trust (Trust) will continue and complete implementation of the remedy for soils and will
implement a remedy for groundwater to allow for redevelopment of the site in accordance with Texas Risk Reduction Program (TRRP) Standard B.

A preliminary meeting was held with USACE Albuquerque Regulatory Division personnel on August 11th, 2011 at the former ASARCO Smelter site to discuss Site background and proposed remedial actions. Meeting minutes are included in Appendix A.

1.3. Project Background and Description

The Trust has taken on the responsibility for the remediation of the former ASARCO Smelter site. The Site is located within the city limits of El Paso, Texas (Figure 1). The main smelter site occupied an area of approximately 120 acres bounded by U.S. Interstate Highway 10 (I-10) on the east and U.S. Highway 85 (Paisano Drive) on the west. The ASARCO site also extends west of Paisano Drive, and east of I-10 (See Figure 1).

The former plant began operations in 1887 as a lead smelter with an initial capacity of 150 tons of ore per day. It was originally owned and operated by the Consolidated Kansas City Smelting and Refining Company. ASARCO was formed in 1899 and the facility was one of the original plants under the new company (Hydrometrics, 1998). In 2005 ASARCO declared Chapter 11 bankruptcy. As part of the bankruptcy proceedings the Trust was established in December 2009 to oversee the clean-up and eventual sale of the property.

The Site had operated for more than 110 years as a heavy industrial, custom metals smelting facility. Processes associated with this activity affected the soil, surface water and surrounding groundwater. Based on the findings of a series of inspections, ASARCO was required to complete four phases of a remediation investigation (RI). The Constituents of Concern (COCs) identified in the RIs include:

- Arsenic
- Cadmium
- Copper
- Chromium
- Iron
- Lead
- Selenium
- Zinc

In addition to the COCs, three water quality parameters were also identified:

- pH
- specific conductivity
- total dissolved solids (TDS)

One of the primary goals of the ASARCO remediation is to reduce the impacts to the Rio Grande and American Canal resultant from transport of on-site soil contaminants primarily via groundwater (GW), and to a lesser degree by surface water run-off. Storm water detained within Texas Department of Transportation (TxDOT) catchment basins east of I-10 as well as storm water falling on the upper portions of the Parker Brothers Arroyo (PBA; Ephemeral ponding area) just west of I-10, when present, provide a
continual downward head for contaminants present in this area and is a significant
ccontributor to ground water (GW) recharge. Ancient subsurface arroyos in and around
the site convey most GW flow and impact GW recharge and transport of contaminants
through the Site. See Figure 2 for an illustration of potential Waters of the U.S. within
the proposed project area.
Preliminary estimates suggest that approximately 70-85 percent of the GW flow beneath
the property moves through the PBA. Action is required to remove sources of COCs and
isolate surface water from GW within the Site in order to limit the transport of
contaminants off site. An effort is being made to decrease the amount of surface water
infiltrating into GW, which will reduce the GW flux in the PBA. To accomplish this
reduction in groundwater flux the following actions are planned:

- Installation of a GW diversion system consisting of an extraction well on Site
  property east of Interstate 10 upstream of TxDOT catchment basin located along
  the affected PBA reach (North Arroyo).

- Excavation of soils within the South Arroyo TxDOT catchment basin to remove
  potential sources of COCs and installation of a low flow ditch and low
  permeability layer within a portion of the basin to exclude surface water from
  GW.

- Removal of slag piles and contaminated soils present within the South arroyo
  upstream of the South Arroyo TxDOT catchment basin to remove potential
  sources of COCs.

- Excavation of soils within channels and ephemeral ponding areas adjacent to
  Union Pacific (UP) rail line to remove potential sources of COCs; channels and
  ponding area on northeast side of rail line (Upper PBA) and channels east and
  west of rail line connecting Upper PBA and South Arroyo to PBA.

- Installation of lined low flow channels within the previously mentioned areas

Figure 3 illustrates affected areas below Ordinary High Water Mark (OHWM).
In addition to the previously stated water quality concerns, flow paths and vegetation
along and surrounding historical arroyos within the site have been disrupted over time
from deposition of various materials and smelter byproducts resultant from on-site
industrial activities. Conditions on site are highly disturbed due to previous industrial
and continuing remediation activities. Vegetation along the Upper PBA and PBA is
sparse to non-existent (see Appendix C Photo log: Photos 8-10 & 13-15, reference Figure
4: Photograph Locations). Vegetation present within the affected area of the South
arroyo consists mainly of invasive *Tamarix spp*.

As part of the remediation process the Trust proposes to reclaim and re-establish flow
through the PBA. In order to restore normal ephemeral flow through the PBA the
following actions are proposed:
• Restoration of Upper PBA to address prior channelization and re-establish native habitat along the arroyo; to include excavation of affected soils, re-grade to reduce ephemeral ponding, installation of an infiltration prevention system, restoration of flow path and re-establishment of native vegetation along the banks of the affected reach.

• Restoration and re-establishment of normal flow through the PBA and re-establishment of native habitat along the arroyo; to include excavation of affected soils, installation of permeable reactive barriers, installation of an infiltration prevention system, restoration of flow path and re-establishment of native vegetation along the banks of the affected reach.

The project broke ground in fall of 2012.

1.4. NWP Request

Based on the pre-application meeting and the description of the project we request that the proposed project be authorized under the jurisdiction of Nationwide Permit (NWP) 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

1.5. Construction Details

1.5.1. General

For applicable aspects of this remediation process the USACE Best Management Practices (BMP) and General Conditions for projects located in Waters of the U.S. will be followed. Appropriate sediment and erosion control devices will be implemented as necessary during construction of the project. Controls such as silt fence or straw bales, sediment traps, and temporary seeding will be implemented on areas disturbed during construction in accordance with requirements of a NWP and Texas Pollution Discharge Elimination System. Affected areas are illustrated within Figure 3.

1.5.2. Groundwater Diversion System

Installation of the GW diversion system will consist of up to 3 extraction wells located within the North arroyo east of I-10 (see Figure 3 for approximate locations). The extraction wells will collect water which would normally transit the Site as GW and release it to the surface in a controlled manner into basins where it will ultimately transit and leave the Site as surface flow. This conversion of GW to surface water, in conjunction with lined retention basins, will reduce the GW flux flowing through the Site resulting in a reduced GW transport of COCs off site.
1.5.3. South TxDOT Catchment Basin

A catchment basin will be constructed to encompass a portion of the affected area of the South (0.22 acres) arroyo up to and including the existing TxDOT catchment basin adjacent to I-10 (see Figure 3; reference Figure 4 and Appendix C Photos 1-4). Basin construction will require removal of existing vegetation (composed mainly of Tamarix spp.) to facilitate excavation of impacted soils within the designated basin footprint to remove potential sources of COCs. Naturally occurring caliche subsoil within the catchment area will be utilized to form an infiltration prevention system. Non-impacted native soil acquired from an on-site borrow source or International Boundary Waters Commission (IBWC) dredging of the Rio Grande River will be used to backfill the excavation to pre-existing contours except in areas where re-grading is required to eliminate ephemeral ponding. Dredged soils have been assessed for contaminants and been deemed suitable for use as topsoil. The system will prevent the infiltration of surface water into GW thereby reducing the overall flux of GW through the site and transport of COCs via GW.

Once complete, impacted areas surrounding the basin will be re-vegetated with appropriate native species.

1.5.4. Removal of Slag Piles and Affected Soils within South Arroyo

Slag piles (0.15 acres) previously deposited below the OHWM of the South arroyo (see Figure 3; reference Figure 4 and Appendix C photos 1&2) will be removed and deposited in approved on-site areas above OHWM. Additionally, affected soils below the OHWM of the South arroyo (5.07 acres) up to the South TxDOT catchment basin will be excavated. Removal of slag piles and affected soils will necessitate removal of surrounding vegetation consisting primarily of Tamarix spp. Upon completion of excavation, non-impacted native soils acquired from dredging of the Rio Grande by the IBWC will be used to backfill excavated areas and reestablish grade to allow for flow. Dredged soils and on-site borrow areas have been assessed for contaminants and been deemed suitable for use as topsoil. Once soils have been replaced, affected areas be monitored for re-establishment of native vegetation or will be re-vegetated with appropriate native vegetation.

1.5.5. Restoration of Upper Parker Brothers Arroyo

Restoration of the Upper PBA will consist of excavation of impacted soils to remove potential sources of COCs and re-grading to reestablish flow path to better match historical conditions and reduce ephemeral ponding which acts to increase potential groundwater infiltration. Excavated impacted soils will be deposited in either approved on-site landfills or other approved areas. Lined channels will be constructed to prevent the infiltration of surface water into GW thereby reducing the overall flux of GW through the site and transport of COCs via GW. Affected channels will be re-graded with non-impacted soil and rip-rap (where needed) to insure flow. Affected areas will be re-
vegetated along the banks with appropriate native vegetation upon completion of restoration. Channel areas adjacent to railways are not within Trust property hence improvements to these channels will be subject to landowner approval. Reference Figure 3 and 4, Appendix C Photos 8-12.

1.5.6. Restoration of Parker Brothers Arroyo

Restoration of the PBA will consist of excavation of impacted soils to remove potential sources of COCs and subsequent installation of a low permeability layer to minimize GW infiltration. Excavated areas will be backfilled with non-impacted soils and a Flexible Membrane Liner (FML) system will be installed with a rip-rap bottom and articulated concrete blocks along the adjacent slopes (where needed) to establish grade to restore normal ephemeral flow through the PBA to the Rio Grande (see Appendix G). A flow path will be established to match the historical path as close as practicable. Reference Figure 3 and 4, Appendix C Photos 13-15. Approved native vegetation will be established along the banks in order to re-establish vegetative habitat along the restored reach.

1.5.7. Excavation and Fill Estimates

Preliminary estimates of excavation and fill volumes associated with the proposed actions are provided in the following Table 1-2. Estimates may change as the project progresses. Final volumes will be provided to the USACE once they become available. Changes to excavation and fill volumes will be communicated to the Corps.

<table>
<thead>
<tr>
<th>Area</th>
<th>Excavation (Cubic Yards)</th>
<th>Fill (Cubic Yards)</th>
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<tbody>
<tr>
<td>South Arroyo within OHWM</td>
<td>34,524</td>
<td>TBD</td>
</tr>
<tr>
<td>South TxDOT Catchment Basin</td>
<td>1,910</td>
<td>TBD</td>
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<tr>
<td>Eastside Track Channel</td>
<td>758</td>
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<td>Westside Track Channel</td>
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<td>UPBA Ephemeral Pond</td>
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<td>881</td>
</tr>
<tr>
<td>UPBA Ephemeral Pond South Channel</td>
<td>0</td>
<td>171</td>
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</table>
2. Site Location

2.1. Site Description

The Site is located within the city limits of El Paso, Texas (Figure 1). The main smelter site occupied an area of approximately 120 acres bounded by I-10 on the east and U.S. Highway 85 (Paisano Drive) on the west. The Site also includes property west of Paisano Drive, and property east of I-10. Geographic coordinates for the Site are 31.781 North and -106.522 West. Site coordinates fall within the Smeltertown United States Geological Survey (USGS) 7.5’ topographic quadrant.

### Table 2-1. Site Summary Information (Decimal Degrees, NAD 83)

<table>
<thead>
<tr>
<th>Site</th>
<th>County</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Former ASARCO Smelter Facility</td>
<td>El Paso</td>
<td>31.781</td>
<td>-106.522</td>
</tr>
</tbody>
</table>

2.1.1. Site and Adjacent Property Owners

The Site is owned and managed by the Texas Custodial Trust: 2301 West Paisano Drive, El Paso, Texas 79922.

For adjacent property owner information please see attached list and figure in Appendix B: Adjacent Property Owner Information.

2.2. Environmental Setting

The following sections provide information about the physiography, topography, soils, climate, surface and groundwater water usage, geology, hydrogeology, and land use for the Site and the surrounding areas.

2.2.1. Physiography

The Site is situated in the Basin and Range Physiographic Province of western Texas and is located in the Rio Grande (or El Paso) Canyon between the Franklin Mountains to the northeast and the Cerros Del Muleros to the southwest in Mexico. North of the site, the Rio Grande flows southeastward through the Mesilla Basin (or Bolson). About two miles above the Facility, the valley narrows and forms El Paso Canyon. This canyon is approximately three miles in length and widens into the Hueco Basin about one mile downstream of the Facility. The Franklin Mountains and Cerros del Muleros are uplifted bedrock and the Mesilla and Hueco Basins are graben features filled with sediment.
2.2.2. Topography
The City of El Paso is located at an elevation from 3,600 feet (ft) above mean sea level (amsl) at the floodplain of the Rio Grande, to greater than 7,000 ft amsl in mountainous terrain of the Franklin Mountains. The Site is located within the Rio Grande Valley floodplain at an elevation of approximately 3,700 ft amsl near the river. The former Plant site is at an elevation of approximately 3,770 ft amsl, which rises steeply from the floodplain. The elevations increase from west to east with the highest elevation of 4,140 ft amsl in the southeastern portion of the property located east of I-10.

2.2.3. Geology
The Site is located in El Paso County within the Rio Grande Valley floodplain at an elevation of approximately 3,700 ft amsl. El Paso County lies within the Basin and Range Province of West Texas. The surficial geology of the region is controlled primarily by the Franklin Mountains, the Hueco Mountains, the Sierra Juarez Range, and the Rio Grande rift.

The surface geology of the Facility area consists of fill and a mix of sediments (generated from erosion of the Campus Andesite and the Franklin Mountains) and fluvial sediments (from the Rio Grande).

2.2.4. Soils
The predominant soil in the vicinity of the Site area is known as Delnorte-Canutillo association hilly soil. This soil type is characterized nearly level to steep soils that are shallow or very shallow, overlying caliche, or deep and gravelly throughout (USDA, 1971).

Soils at the former plant area are a mix of colluvial and fluvial sediments, with areas of extensive fill consisting of slag, soil, and other anthropogenic materials such as concrete and asphalt.
3. Alternatives

Site remediation activities are mandated by the TCEQ. As such no alternative actions to address impact to waters of the U.S. have been put forward. All proposed actions which disturb waters of the U.S. have been designed to minimize impacts to the greatest extent practicable.
4. Methods

Prior to conducting field surveys, Malcolm Pirnie conducted a desktop assessment of the project corridor using USDA soil surveys, infrared (IR) photography, 2004 aerial imagery, US Geological Survey (USGS) topographic maps, and US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps. This review allowed for preliminary identification of wetlands and provided an understanding of the ecology, land use, and general physiography of the site.

The proposed Project route was surveyed using the methodology outlined in the 1987 USACE Wetland Delineation Manual, including the regional supplement, Regulatory Guidance Letter 08-02, and the Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in Arid West Region. Specifically, the methods outlined in Section D, subsection 2, for on-site inspections were used to determine the absence or presence of jurisdictional areas. The Project route was located by overlaying engineered project plans, onto 1:24,000 USGS topographic maps using GIS software. The Project route was examined, in general, for indications of hydric soils, hydrophytic vegetation, and wetland hydrology.

Each wetland and other water features in the study area were assigned a unique identification (ID) number. Identification numbers were created in consecutive order. The proposed Project corridor was traversed and information characterizing vegetation communities was recorded. Representative observation points were selected among the different vegetation community types. A list of dominant species from the general area surrounding the observation points, as well as the plants’ stratum and wetland indicator status were recorded on wetland determination data sheets. Plant wetland indicator status was determined using the USFWS Hydrophytic Plant Index for Region 6 – South Plains. Wetland hydrologic indicators and soil profile characteristics (15-inch maximum depth) for each observation point were also examined and recorded on the wetland data sheets. Hydric soils were assumed to be present at observation points if: 1) all dominant species had an indicator status of Obligate (OBL); and 2) all dominant species had an indicator status of OBL or Facultative Wet (FACW), and the wetland boundary was abrupt, or if mineral soils had a matrix chroma of 2 or less in mottled soils or a matrix chroma of 1 or less in un-mottled soils (Environmental Laboratory, 1987). Information about the proposed Project route was also obtained through inspection of the USDA soil surveys for El Paso County.

A minimum of two soil pits were dug at each potential site, a wetland and upland pit, except where hydric soils were assumed due to the presence of standing water in excess of 1 foot. Each pit was examined for the presence of hydric soil indicators. Additional pits were dug as necessary to more accurately determine the extent of wetland boundaries. Other water features were identified by the presence of a defined bed and
bank and evidence of an OHWM. The information recorded on this feature included water flow, bank slope, bank height, substrate characteristics, presence of wildlife, associated vegetation, and percent of canopy cover.

4.1. GPS Data Collection

Wetlands and other water features were mapped in accordance with the USACE District's Standard Operating Procedures (SOP) for Recording Jurisdictional Determinations Using Global Positioning Systems (GPS) (USACE, 2003). All GPS data were edited for errors and clipped to the study area boundary. All wetlands and other water features were recorded using a differential GPS device. The GPS was programmed to only record points, with a minimum of four satellites and a Position Dilution of Precision (PDOP) value no greater than 6.0. Wetland features were demarked by collecting GPS points along the perimeter of the wetland with suitable frequency to represent the wetland within the project corridor. All wetlands and other water features were also photographed. A complete photographic log of the preliminary jurisdictional areas is attached as Appendix C with Figure 4 representing photo locations.

4.2. Preliminary Jurisdictional Determination

The jurisdictional status of the wetlands and other water features is generally based on the feature being adjacent to or having an obvious hydrologic connection to a known or traditional jurisdictional waterway or wetland. For the purposes of this analysis, all named waterways and their tributaries were considered traditional and jurisdictional, as were all wetlands associated with a spring, seep, or other natural hydrological sources. If a wetland was separated from a named waterway or other water feature determined to be jurisdictional by the method mentioned previously by a berm, roadway, railway, or other man-made feature, it was considered adjacent and jurisdictional even if a culvert or other surface connection is not observed. Wetlands and other water features that fell within 1,000 feet of named waterways or tributaries to named waterways were also considered adjacent. If no hydrologic connection (current or historical) was observed or could be identified on topographical maps or from ground truthing, then the wetland was considered non-jurisdictional. According to Rapanos Guidance, any man-made structures lacking an OHWM and hydric vegetation would not be considered jurisdictional.
5. Waters of the U.S.

Malcolm Pirnie conducted a desktop survey to identify surface waters subject to jurisdiction under Sections 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act (33 CFR 320). The results of the delineation for the remediation site are described in the following sections. The locations of surface waters in relation to restoration sites are shown on Figure 2. Photographs of surface waters are located in Appendix C.

5.1. Wetlands

No wetlands are present within the Site boundaries as indicated by National Wetlands Inventory data layers and on-site inspection.

5.2. Other Waters of the U.S.

Historically, the PBA flowed through the Site from east to west ultimately discharging into the American Canal or the Rio Grande. Over time the PBA has been filled with a variety of materials including slag cooled in-place, re-deposited slag, crushed rock, brick, metal, concrete fragments, and native soils which has eliminated normal surface flow through the arroyo. Additionally a 42-inch storm water drain was previously installed to bypass surface flow through a portion of the PBA (Lower PBA) and direct normal surface flow to a concrete canal and into the Rio Grande. This 42-inch storm water drain had a blow-out during a 2006 extreme weather event and no longer functioned to redirect flow. Due to failure of the drain and historical modifications to the Lower PBA from industrial activities associated with smelter processes it was determined during the August 11th on-site review by USACE personnel that the Lower PBA no longer constituted Waters of the U.S. With this determination the storm drain has been removed as part of site remediation activities and eventual restoration of normal flow through the PBA.

Surface flow still passes through a portion of the PBA designated as the Upper PBA. The Upper PBA begins just west of I-10 and terminates at the inlet of the 42 inch drain pipe east of the UP rail line. Surface water feeds into the Upper PBA through two TxDOT catchment basins adjacent to the east side of I-10 which are in turn fed by two arroyos designated the South Arroyo and North Arroyo located off the main site on Trust property east of I-10.
During site visits on August 11th & 12th and September 16th, 2011 OHWM was delineated for the portions of the North and South arroyos as well as the Upper PBA which will be affected by the proposed remediation actions (see Figure 3).

Impacts to Waters of the U.S. will total approximately 7.19 acres (see Figure 3 and Table 5-1). Individual impacts are as follows:

South Arroyo: a total of 5.29 acres of surface area below the plane of the OHWM will be temporarily impacted. This acreage includes 0.15 acres of impacts associated with removal of slag piles with the remaining acreage encompassing excavations to remove affected soils.

Upper Parker Brothers Arroyo: 1.90 acres of surface area below the plane of the OHWM will be impacted due to removal of affected soils, installation of an infiltration prevention system and re-establishment of the flow path as part of the overall remediation process to improve flow in the Upper PBA and re-establish normal flow within the Parker Brothers Arroyo. This acreage includes permanent impacts to 1.06 acres of herbaceous wetlands within the ephemeral ponding area and 0.84 acres of temporary channel impacts.

<table>
<thead>
<tr>
<th>Location</th>
<th>Longitude</th>
<th>Latitude</th>
<th>Acres</th>
<th>PCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Arroyo within OHWM</td>
<td>-106.516459</td>
<td>31.786075</td>
<td>5.07</td>
<td>Required</td>
</tr>
<tr>
<td>South Catchment Basin</td>
<td>-106.517367</td>
<td>31.78475</td>
<td>0.22</td>
<td>Required</td>
</tr>
<tr>
<td>UPBA Ephemeral Pond North Channel</td>
<td>-106.51978</td>
<td>31.786686</td>
<td>0.36</td>
<td>Required</td>
</tr>
<tr>
<td>UPBA Ephemeral Pond</td>
<td>-106.520698</td>
<td>31.785051</td>
<td>1.06</td>
<td>Required</td>
</tr>
<tr>
<td>UPBA Ephemeral Pond South Channel</td>
<td>-106.520519</td>
<td>31.784267</td>
<td>0.20</td>
<td>Required</td>
</tr>
<tr>
<td>Eastside Track Channel*</td>
<td>-106.519336</td>
<td>31.783939</td>
<td>0.18</td>
<td>Required</td>
</tr>
<tr>
<td>Central Track Channel*</td>
<td>-106.520407</td>
<td>31.783444</td>
<td>0.01</td>
<td>Required</td>
</tr>
<tr>
<td>Westside Track Channel*</td>
<td>-106.521122</td>
<td>31.783865</td>
<td>0.09</td>
<td>Required</td>
</tr>
</tbody>
</table>

* Track Channel areas not owned by Texas Custodial Trust; all proposed improvements to these areas subject to land owner approval.
6. Threatened and Endangered Species

The Endangered Species Act (ESA) provides a program for the protection and conservation of threatened and endangered plants and wildlife. The ESA prohibits any action that results in a "taking" of listed species, or adversely affects critical habitats. Likewise, import, export, interstate, and foreign commerce of listed species are prohibited. In addition, Section 7 of the ESA requires all federal agencies, in consultation with and with the assistance of the Secretary of the Interior, to ensure that their actions will not likely jeopardize the continued existence of a threatened and endangered species, or result in destruction or adverse modification of a critical habitat of a species.

To address these requirements Malcolm Pirnie biologists conducted background research to determine the potential for rare species occurrence in the project area. A review of the threatened and endangered species lists for El Paso County, Texas, maintained by the USFWS and the Texas Parks and Wildlife Department (TPWD) identified 16 federally and state listed threatened and endangered species and an additional 38 state-listed rare species that potentially occur within the county. Six species are federally listed or are candidates for federal listing and an additional nine species that are state-listed only. Table 6 provides a list of threatened and endangered species of potential occurrence in El Paso County along with their regulatory status, a brief description of their habitat requirements, and the results of investigations relative to the proposed project.

Of the five federally listed species only the Southwestern willow flycatcher has the potential of being impacted by this project due to the potential presence of nesting habitat (presence of non-native Salt cedar (Tamarix spp.)) within areas of the North and South arroyos east of I-10 which will be subjected to vegetation removal resultant from installation of a ground water cutoff wall, lined retention basins and removal of slag piles.

An agency consultation letter detailing potential project impacts was submitted to the USFWS Austin Ecological Services Field Office on September 14, 2011. A response of "No Action" required was received on October 17, 2011 (see Appendix E: Agency Correspondence).

In summary, no federally listed threatened or endangered species or critical habitats were identified within the project area.
### Table 6-1. Federally Threatened and Endangered Species of Potential Occurrence in El Paso County

<table>
<thead>
<tr>
<th>Species</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Description of Suitable Habitat</th>
<th>Habitat Present</th>
<th>Federal Species Effect</th>
<th>State Species Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AMPHIBIANS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No impact; the ephemeral drainage feature located within the project area does not provide suitable habitat.</td>
</tr>
<tr>
<td>Northern leopard frog Rana pipiens</td>
<td></td>
<td></td>
<td>Found in streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water. Eggs are laid from March to May and tadpoles transform from late June to August. May have disappeared from El Paso County due to habitat alteration</td>
<td></td>
<td></td>
<td>No impact; the ephemeral drainage feature located within the project area does not provide suitable habitat.</td>
</tr>
<tr>
<td><strong>BIRDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No impact; no cliff eyries, etc. present within the project area.</td>
</tr>
<tr>
<td>American Peregrine Falcon Falco peregrinus anatum</td>
<td>DL</td>
<td>T</td>
<td>Nests in west Texas; prefers high, massive cliffs, preferably near water where avian prey densities are high.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat present within the project area.</td>
</tr>
<tr>
<td>Arctic Peregrine Falcon Falco peregrinus tundrius</td>
<td>DL</td>
<td></td>
<td>Migrant throughout state from subspecies’ far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.</td>
<td></td>
<td></td>
<td>No impact; no suitable habitat present within the project area.</td>
</tr>
<tr>
<td>Baird’s Sparrow Ammodramus bairdii</td>
<td>--</td>
<td></td>
<td>Found in shortgrass prairie with scattered low bushes and matted vegetation. Mostly migratory in western half of Texas, though winters in Mexico and just across Rio Grande into Texas from Brewster to Hudspeth Counties</td>
<td>No</td>
<td>--</td>
<td>No impact; no shortgrass prairie present within the project area.</td>
</tr>
<tr>
<td>Ferruginous Hawk Buteo regalis</td>
<td>--</td>
<td></td>
<td>Found in open country, primarily prairies, plains, and badlands with nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, or power line towers. Year-round resident in northwestern high plain, wintering elsewhere throughout western two-thirds of Texas.</td>
<td></td>
<td></td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Interior Least Tern Sterna antillarum athalassos</td>
<td>E</td>
<td>E</td>
<td>Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on manmade structures (inland beaches, wastewater treatment plants, gravel mines, etc.); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony.</td>
<td>No</td>
<td></td>
<td>No effect; no suitable water features present within the project area.</td>
</tr>
<tr>
<td>Mexican Spotted Owl Strix occidentalis lucida</td>
<td>T</td>
<td>T</td>
<td>Found in remote shaded canyons of coniferous mountain woodlands</td>
<td>No</td>
<td></td>
<td>No effect; no Coniferous mountain woodlands present within the project area.</td>
</tr>
</tbody>
</table>
### Threatened and Endangered Species

<table>
<thead>
<tr>
<th>Species</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Description of Suitable Habitat</th>
<th>Habitat Present</th>
<th>Federal Species Effect</th>
<th>State Species Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montezuma Quail <em>Cyrtonyx montezumae</em></td>
<td>--</td>
<td>--</td>
<td>Found in open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills.</td>
<td>No</td>
<td>--</td>
<td>No impact; no pine-oak or juniper-oak woodlands present within the project area</td>
</tr>
<tr>
<td>Northern Aplomado Falcon <em>Falco femoralis septentrionalis</em></td>
<td>E</td>
<td>E</td>
<td>Found in open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus.</td>
<td>No</td>
<td>No effect. The project area is not considered suitable habitat.</td>
<td>n/a</td>
</tr>
<tr>
<td>Peregrine Falcon <em>Falco peregrinus</em></td>
<td>DL</td>
<td>T</td>
<td>Contains two sub species, the American peregrine falcon and Arctic peregrine falcon (<em>Falco peregrinus tundrius</em>); considered potential fall and spring migrants from northern breeding areas in the U.S. and Canada to winter along the coast and farther south. The two subspecies are not easily distinguishable from a distance and are generally referenced together at the species level. Peregrine falcons prefer open areas and often occur near water or wherever smaller birds concentrate. The species also generally avoids developed areas.</td>
<td>No</td>
<td>--</td>
<td>No impact; no cliff eyries, lake shores, coastlines, or barrier islands present within the project area.</td>
</tr>
<tr>
<td>Prairie Falcon <em>Falco mexicanus</em></td>
<td>--</td>
<td>--</td>
<td>Found in open mountainous areas, plains, and prairies; nests on cliffs.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Snowy Plover <em>Charadrius alexandrinus</em></td>
<td>--</td>
<td>--</td>
<td>Formerly an uncommon breeder in the Panhandle, a potential migrant wintering along the coast.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Southwestern Willow Flycatcher <em>Empidonax Traillii extimus</em></td>
<td>E</td>
<td>E</td>
<td>Found in thickets of willow, cottonwood, mesquite, and other species along desert streams</td>
<td>No</td>
<td>No effect; no thickets of vegetation along desert streams present within the project area</td>
<td>n/a</td>
</tr>
<tr>
<td>Sprague’s Pipit <em>Anthus spragueii</em></td>
<td>C</td>
<td></td>
<td>This species is only in Texas during migration and winter, mid-September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Western Burrowing Owl <em>Athene cunicularia hypugaea</em></td>
<td>--</td>
<td>--</td>
<td>Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Species</td>
<td>Federal Status</td>
<td>State Status</td>
<td>Description of Suitable Habitat</td>
<td>Habitat Present</td>
<td>Federal Species Effect</td>
<td>State Species Impact</td>
</tr>
<tr>
<td>-------------------------------------</td>
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<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Western Snowy Plover Charadrius alexandrinus nivosus</td>
<td>--</td>
<td></td>
<td>An uncommon breeder in the Panhandle, a potential migrant wintering along the coast.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Yellow-billed Cuckoo Coccyzus americanus</td>
<td>C; NL</td>
<td></td>
<td>Breeds in deciduous riparian woodlands with cottonwoods and willows. Nests in willow, mesquite, cottonwood, and hackberry and forages in similar riparian woodlands</td>
<td>No</td>
<td>No effect; no Riparian woodlands present in the project area.</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>FISHES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bluntnose Shiner Notropis simus simus</td>
<td>--</td>
<td>T</td>
<td>Found in the Rio Grande main river channel, often below obstructions over substrate of sand, gravel, and silt.</td>
<td>No</td>
<td>--</td>
<td>No impact; species is considered extirpated from the Rio Grande.</td>
</tr>
<tr>
<td>Rio Grande Silvery Minnow Hybognathus amarus</td>
<td>E</td>
<td>E</td>
<td>Historically found in the Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area of Rio Grande in December 2008</td>
<td>No</td>
<td>--</td>
<td>No impact; species is extirpated, and recent reintroduction is over 300 miles downstream of project area.</td>
</tr>
<tr>
<td><strong>INSECTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Royal moth Sphingicampa raspa</td>
<td>---</td>
<td></td>
<td>Found in woodland-hardwoods with oaks, junipers, legumes and other woody trees and shrubs. Good density of legume caterpillar foodplants must be present.</td>
<td>No</td>
<td>--</td>
<td>No impact; no woodland-hardwoods present in the project area.</td>
</tr>
<tr>
<td>A tiger beetle Cicindela hornii</td>
<td>---</td>
<td></td>
<td>Found in grasslands and herbaceous areas, in dry areas on hillsides or mesas where soil is rocky or loamy and covered with grasses</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat is present in the project area.</td>
</tr>
<tr>
<td>Barbara Ann’s tiger beetle Cicindela politula barbaramae</td>
<td>---</td>
<td></td>
<td>Found in limestone outcrops in arid treeless environments or in openings with less arid pine-juniper-oak communities. Open limestone substrate is almost certainly an essential feature.</td>
<td>No</td>
<td>--</td>
<td>No impact; no limestone outcrops or juniper-oak communities present in the project area</td>
</tr>
<tr>
<td>Poling’s hairstreak Fixsenia polingi</td>
<td>---</td>
<td></td>
<td>Found in oak woodlands with gray oak as a substantial component and Emory’s oak.</td>
<td>No</td>
<td>--</td>
<td>No impact; no oak woodlands present in the project area.</td>
</tr>
<tr>
<td><strong>MAMMALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big free-tailed bat Nyctinomops macrotis</td>
<td>--</td>
<td></td>
<td>Records indicate that species prefers to roost in crevices and cracks in high canyon walls but will use buildings as well.</td>
<td>No</td>
<td>--</td>
<td>No impact; no canyon walls or buildings present in the project area.</td>
</tr>
<tr>
<td>Black bear Ursus americanus</td>
<td>T/SA;NL</td>
<td>T</td>
<td>Found in bottomland hardwoods and large tracts of inaccessible forested areas</td>
<td>No</td>
<td>--</td>
<td>No impact; no bottomland hardwoods or forested areas present in the project area.</td>
</tr>
<tr>
<td>Black-footed ferret Mustela nigripes</td>
<td>E</td>
<td></td>
<td>Inhabited prairie dog towns in the general area.</td>
<td>No</td>
<td>--</td>
<td>No impact; species is considered extirpated.</td>
</tr>
<tr>
<td>Black-tailed prairie dog Cynomys ludovicianus</td>
<td>---</td>
<td></td>
<td>Found in dry, flat short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle</td>
<td>No</td>
<td>--</td>
<td>No impact; no short grasslands present in the project area.</td>
</tr>
</tbody>
</table>
### Section 6

**Threatened and Endangered Species**

<table>
<thead>
<tr>
<th>Species</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Description of Suitable Habitat</th>
<th>Habitat Present</th>
<th>Federal Species Effect</th>
<th>State Species Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cave myotis bat <em>Myotis velifer</em></td>
<td></td>
<td></td>
<td>Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (<em>Hirundo pyrrhonota</em>) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter, opportunistic insectivore.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable cave, bridge, or building habitat present in the project area.</td>
</tr>
<tr>
<td>Desert pocket gopher <em>Geomys arenarius</em></td>
<td></td>
<td></td>
<td>Found in cottonwood-willow association located along the Rio Grande.</td>
<td>No</td>
<td>--</td>
<td>No impact; no cottonwood-willow association present in the project area.</td>
</tr>
<tr>
<td>Fringed bat <em>Myotis thysanodes</em></td>
<td></td>
<td></td>
<td>Habitat is variable, ranging from mountainous pine, oak, and pinyon-juniper to desert-scrub, but prefers grasslands at intermediate elevations.</td>
<td>No</td>
<td>--</td>
<td>No impact; no desert scrub present in the project area.</td>
</tr>
<tr>
<td>Gray Wolf <em>Canis lupus</em></td>
<td>E E</td>
<td></td>
<td>Formerly known throughout the western two-thirds of the state.</td>
<td>No</td>
<td>--</td>
<td>No impact; species is considered extirpated from Texas.</td>
</tr>
<tr>
<td>Long-legged bat <em>Myotis volans</em></td>
<td></td>
<td></td>
<td>Found in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night.</td>
<td>No</td>
<td>--</td>
<td>No impact; no mountainous terrain or suitable cave or crevice habitat present in the project area. Project will not require displacement of any potential building habitat.</td>
</tr>
<tr>
<td>Pale Townsend’s bigeared bat <em>Corynorhinus townsendii pallescens</em></td>
<td></td>
<td></td>
<td>Roosts in caves, abandoned mine tunnels, and occasionally old building</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable cave, tunnel, or building habitat present in the project area.</td>
</tr>
<tr>
<td>Pecos River muskrat <em>Ondatra zibethicus ripensis</em></td>
<td></td>
<td></td>
<td>Found in creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in domeshaped lodges constructed of vegetation.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable water features or marshy vegetation present in the project area.</td>
</tr>
<tr>
<td>Western red bat <em>Lasiurus blossevillii</em></td>
<td></td>
<td></td>
<td>Roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests</td>
<td>No</td>
<td>--</td>
<td>No impact; no riparian areas, xeric thorn scrub, or pine-oak forests present in the project area.</td>
</tr>
<tr>
<td>Western small-footed bat <em>Myotis ciliolabrum</em></td>
<td></td>
<td></td>
<td>Found in mountainous regions of the Trans-Pecos, usually in wooded areas. Also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable rock habitat present in the project area.</td>
</tr>
<tr>
<td>Yuma myotis bat <em>Myotis yumanensis</em></td>
<td></td>
<td></td>
<td>Found in desert regions; most commonly found in lowland habitats near open water. Roosts in caves, abandoned mine tunnels, and buildings</td>
<td>No</td>
<td>--</td>
<td>No impact; no open water or suitable cave or tunnel habitat present in the project area. Project will not require displacement of any potential building habitat.</td>
</tr>
</tbody>
</table>

---

**Malcolm Pirnie**

*Texas Custodial Trust*

Pre-Construction Notification for Nationwide Permit Coverage

6835001

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**6-5**
<table>
<thead>
<tr>
<th>Species</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Description of Suitable Habitat</th>
<th>Habitat Present</th>
<th>Federal Species Effect</th>
<th>State Species Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOLLUSKS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Franklin Mountain talus snail <em>Sonorella metcalf</em></td>
<td>—</td>
<td>—</td>
<td>Terrestrial; found in bare rock, talus, scree. Inhabits igneous talus most commonly of rhyolitic origin</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable rock features present within the project area</td>
</tr>
<tr>
<td>Franklin Mountain wood snail <em>Ashmunella pasonis</em></td>
<td>—</td>
<td>—</td>
<td>Terrestrial; found in bare rock, talus, scree, talus slopes (usually of limestone), but also of rhyolite, sandstone, and siltstone, in arid mountain ranges</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable rock features present within the project area</td>
</tr>
<tr>
<td><strong>REPTILES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big Bend slider <em>Trachemys gaigeae</em></td>
<td>—</td>
<td>T</td>
<td>Almost exclusively aquatic, sliders (<em>Trachemys spp.</em>) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable water features present within the project area</td>
</tr>
<tr>
<td>Chihuahuan Desert lyre snake <em>Trimorphodon vilkisonii</em></td>
<td>—</td>
<td>T</td>
<td>Mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable limestone features present in the project area.</td>
</tr>
<tr>
<td>Mountain short-horned lizard <em>Phrynosoma hernandesi</em></td>
<td>—</td>
<td>T</td>
<td>Found in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrows when inactive. Species is found at high elevations and is known only from locations in the Davis, Guadalupe, and Hueco Mountains.</td>
<td>No</td>
<td>--</td>
<td>No impact; project is not located at a high enough elevation or within the Davis, Guadalupe, or Hueco Mountains.</td>
</tr>
<tr>
<td>New Mexico garter snake <em>Thamnophis sirtalis dorsalis</em></td>
<td>—</td>
<td>—</td>
<td>Found in nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water.</td>
<td>No</td>
<td>--</td>
<td>No impact; no moist or wet habitat present in the project area</td>
</tr>
<tr>
<td>Texas Horned Lizard <em>Phrynosoma cornutum</em></td>
<td>—</td>
<td>T</td>
<td>Found in open, arid and semi-arid regions with sparse vegetation, scattered brush or scrubby trees; sandy to rocky soils; burrows into soil, enters rodent burrows, or hides under rocks when inactive</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat present within the project area</td>
</tr>
<tr>
<td><strong>PLANTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comal snakewood <em>Colubrina stricta</em></td>
<td>—</td>
<td>—</td>
<td>In El Paso, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop. In Mexico, found in shrublands on calcareous, gravelly, clay soils with woody associates</td>
<td>No</td>
<td>--</td>
<td>No impact; no igneous rock present within the project area.</td>
</tr>
<tr>
<td>Desert night-blooming cereus <em>Peniocereus greggii var greggii</em></td>
<td>—</td>
<td>—</td>
<td>Found in Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat present within the project area</td>
</tr>
</tbody>
</table>

*Texas Custodial Trust*  
*Pre-Construction Notification for Nationwide Permit Coverage*  
*6835001*  

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Section 6  
Threatened and Endangered Species
### Section 6

**Threatened and Endangered Species**

<table>
<thead>
<tr>
<th>Species</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Description of Suitable Habitat</th>
<th>Habitat Present</th>
<th>Federal Species Effect</th>
<th>State Species Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hueco rock-daisy</strong> Perityle huecoensis</td>
<td>---</td>
<td>---</td>
<td>North-facing or otherwise mostly shaded limestone cliff faces within relatively mesic canyon system.</td>
<td>No</td>
<td>--</td>
<td>No impact; no limestone cliff faces or mesic canyon systems present in the project area.</td>
</tr>
<tr>
<td><strong>Resin-leaf brickellbush</strong> Brickellia baccharidea</td>
<td>---</td>
<td>---</td>
<td>Found in mixed desert shrublands on bajada slopes and in arroyos on sandy or gravelly soils derived from limestone, but also known from igneous substrates.</td>
<td>No</td>
<td>--</td>
<td>No impact; no suitable habitat present within the project area.</td>
</tr>
<tr>
<td><strong>Sand prickly-pear</strong> Opuntia arenaria</td>
<td>---</td>
<td>---</td>
<td>Found in deep, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos.</td>
<td>No</td>
<td>--</td>
<td>No impact; no sand, dunes, or sand hill areas present in the project area.</td>
</tr>
<tr>
<td><strong>Sand sacahuista</strong> Nolina arenicola</td>
<td>---</td>
<td>---</td>
<td>Texas endemic; mesquite-sand sage shrublands on windblown Quaternary reddish sand in dune areas.</td>
<td>No</td>
<td>--</td>
<td>No impact; no sand dune areas present in the project area.</td>
</tr>
<tr>
<td><strong>Sneed’s Pincushion Cactus</strong> Coryphantha sneedii var. sneedii</td>
<td>E</td>
<td>E</td>
<td>Found on dry limestone outcrops on rock slopes in desert mountains of the Chihuahuan Desert.</td>
<td>No</td>
<td>No effect; no limestone outcrops or rock slopes present within the project area.</td>
<td>No impact; no limestone outcrops or rock slopes present within the project area.</td>
</tr>
<tr>
<td><strong>Texas false saltgrass</strong> Allolepis texana</td>
<td>---</td>
<td>---</td>
<td>Found in sandy to silty soils of valley bottoms and river floodplains, not generally on alkaline or saline sites.</td>
<td>No</td>
<td>--</td>
<td>No impact; no sandy or silty soils are present within the project area.</td>
</tr>
<tr>
<td><strong>Wheeler’s spurge</strong> Chamaesyce geyeri var. wheeleriana</td>
<td>---</td>
<td>---</td>
<td>Found in sparingly vegetated, loose cobian quartz sand on reddish sand dunes or coppice mounds.</td>
<td>No</td>
<td>--</td>
<td>No impact; no sand dunes or coppice mounds present in the project area.</td>
</tr>
</tbody>
</table>

E – Endangered; T – Threatened; C- Candidate; SA – Federally Listed Endangered/Threatened by Similarity of Appearance; NL- Not Federally listed; DL- Delisted taxon; “-” – No designation occurring within identified county; “blank” – Rare, but with no regulatory listing status; “- -” – No determination of effect required because species lacks federal listing status; “n/a” – No state species impact call required because species is federally listed

Sources: U.S. Fish and Wildlife Service (March 11, 2011), Texas Parks and Wildlife Department, Wildlife Division, Diversity and Habitat Assessment Programs, County Lists of Texas Special Species (El Paso, February 28, 2011), and Field Visit (March 2011).
7. Cultural Historical Resources

As stated previously the Site was operated for more than 110 years as a heavy industrial, custom metals smelting facility. Historical arroyos and surrounding areas within the site have been disrupted over time from repeated deposition and excavation of various materials and smelter byproducts resultant from on-site industrial activities. Conditions on site are highly disturbed due to previous industrial and continuing remediation activities. As such no impact to cultural historic resources is anticipated. However, due to the close proximity of the Smeltertown cemetery to Trust lands along the northern border of the Site (see Figure 2) an archaeological survey was initiated.

7.1. Archaeological Survey

Ecosystem Management, Inc. (EMI) conducted Phase I Archaeological Testing of approximately .73 acres of Trust land adjacent to the Smeltertown (La Calavera) Cemetery (owned by the Catholic Diocese of El Paso) in El Paso County, Texas. EMI was contracted by Malcolm Pirnie to conduct archaeological testing to determine the presence or absence of undocumented or unknown extramural interments or other cultural attributes outside the existing cemetery boundary. The existing boundary of the cemetery is approximately 530 feet from any waters of the U.S.

To ensure compliance with applicable Federal, State, and local laws and regulations concerning cultural resources and the preservation and delineation of cemetery properties, the Trust initiated an intensive archaeological survey of the proposed project area of potential effects (APE) adjacent to the cemetery. An intensive archaeological survey as described by the Council of Texas Archaeologists and Federal Code 36 CFR 66 represents a “systematic, detailed field inspection done by or under the supervision of professional architectural historians, historians, archeologists, and/or other appropriate specialists.... It is preceded by adequate background research.... Systematic subsurface testing is conducted if necessary to locate or obtain full descriptive and evaluative data. Documentary data necessary to the evaluation of specific properties are compiled and analyzed. A systematic effort is made to identify all properties within the area of concern that might qualify for the National Register and to record sufficient information to permit their evaluation”.

Testing related activities performed by EMI included a 100 percent pedestrian survey of the proposed project APE, numerous soil probes, and visual subsurface inspection of seven selected areas of interest. A complete and thorough investigation of the area was

Extensive surface and sub-surface investigations conducted by archaeologists meeting the Secretary of the Interior’s standards failed to discover or observe any artifacts, features, or other cultural attributes adjacent to the Smeltertown Cemetery.

7.2. Discovery Protocol

Most of the Texas laws regarding historic cemeteries are in Chapters 711–715 of the Texas Health and Safety Code; Title 13, Part 2, Chapter 22 of the TAC; and sections of the Penal Code. Neither the Texas Historical Commission nor any other state agency enforces cemetery laws. This responsibility belongs to county and municipal officials.

Should human remains or other significant cultural attributes be encountered during Site remediation and restoration activities, the following protocol will be employed:

1. All work related activities will be suspended.
2. Trust personnel will be notified.
3. The El Paso County Sheriff Department will be notified.
4. The local community liaison will be consulted.
5. Work will not resume until complete compliance with local, state, or other applicable rules, laws, or regulations has been achieved.
8. National Pollution Discharge Elimination System (NPDES)

NPDES is a federal regulatory program to control discharges of pollutants to surface waters of the United States. The TCEQ Texas Pollutant Discharge Elimination System (TPDES) program now has federal regulatory authority over discharges of pollutants to Texas surface water, with the exception of discharges associated with oil, gas, and geothermal exploration and development activities, which are regulated by the Railroad Commission of Texas.

A Storm Water Pollution Prevention Plan (SWP3) has been developed for the proposed activities in order to meet the requirements set forth by the TCEQ General Permit to Discharge Under the Texas Pollutant Discharge Elimination System; Permit No. TXR050000 and those of Chapter 15.20 of the Storm Water Management Ordinance of the El Paso Municipal Code.
9. Other Permits

9.1.1. Floodplains

According to the Federal Emergency Management Administration (FEMA), Flood Insurance Rate Map Community Panel No. 4802140032C, dated February 5, 1986, the proposed improvements are within Flood Zone A2, the areas of 100 year flood, flood elevations and flood hazard factions determined (see Appendix F).

The improved channel revises the existing floodplain requiring a Conditional Letter of Map Revision (CLOMR) to be submitted to the City of El Paso and FEMA. The CLOMR for the Lower PBA interim channel has been prepared by Parkhill, Smith, & Cooper (PSC, 2011) and submitted under a separate cover. Other CLOMR’s will be processed as designs become completed for remaining affected areas: Lower PBA final design, Upper PBA, North and South Arroyo catchment areas.

9.1.2. Scenic Rivers

Review of the U.S. Nation Park list of national wild and scenic rivers and Title 30 to the Texas Administrative Code §307.10(1) Appendix A indicates that no portion of federal or state designated waters will be affected.
10. Mitigation

For applicable aspects of this remediation process the USACE BMPs and General Conditions for projects located in Waters of the U.S. will be followed. Appropriate sediment and erosion control devices will be implemented as necessary during construction of the project. Controls such as silt fence or straw bales, sediment traps, and temporary seeding will be implemented on all areas disturbed during construction in accordance with requirements of a Nationwide Permit.

Excavations will take place to remove potential sources of surface and groundwater contaminants with the purpose of reducing impacts to off-site resources. Excavated areas within the South arroyo upstream of the South TxDOT catchment basin will be backfilled with native soils and vegetation will be re-established within affected areas (see Figure 5). This 5.29 acre area will be enhanced by the removal of invasive salt cedar. Salt cedar will also be removed from a 0.91 acre upland area adjacent to the affected South arroyo. In addition salt cedar will be removed from a 1.74 acre area below the OHWM of the North arroyo and associated North TxDOT catchment basin in order to enhance this wetland area (see Figure 5). Additionally, the PBA will be remediated to re-establish normal flow resulting in creation of 1.73 acres of channel along with establishment of native vegetation along the banks of the remediated reach. Where possible, native vegetation will be re-established along affected channels within the Upper PBA (see Figure 5).

As part of the requirements of Nationwide Permit 27 a monitoring plan has been developed and will be implemented to ensure that the remediation process is achieving its stated goals and to determine future conditions which may require modification to the overall remediation plan. As part of this plan an annual monitoring report shall be submitted to the USACE each year, for 5 years, by January 31st of the year subsequent to all data collection, starting after the first growing season (or 3 years upon request of the permittee and satisfactory achievement of monitoring release criteria). See Appendix H: Mitigation Monitoring Plan for the Former ASARCO Smelter Remediation.
11. Literature Cited


Texas Custodial Trust
Pre-construction Notification for Nationwide Permit Coverage
Former ASARCO Smelter Remediation, El Paso, Texas

Figures
Figure 1

Regional Vicinity Map

Texas Custodial Trust
Former ASARCO Smelter Site Remediation
El Paso, Texas

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Legend

Former ASARCO Site

Site Location

MALCOLM PIRNIE

April 2015

Figure 1
Legend
- Flow Path
- Overflow Path
- Delineated OHWM
- Site Boundary
- Smeltertown Cemetery
- Railroad

North Arroyo
South Arroyo
Ephemeral Ponding Area
Upper PBA (North)
Upper PBA (South)
Ephemeral Ponding Area

Rio Grande River
Paisano Drive
Union Pacific Lines
Parker Brothers Arroyo

North Arroyo
South Arroyo

Waters of the U.S.
June 2015
Figure 2
Affected Areas

- South Arroyo within OHWM
- UPBA Ephemeral Pond North Channel
- Railroad
- Extraction Well
- South Catchment Basin
- UPBA Ephemeral Pond
- UPBA Ephemeral Pond South Channel
- Eastside Track Channel
- PBA Bottom
- Central Track Channel
- Westside Track Channel
- Salt Cedar Removal Area

Texas Custodial Trust
Former ASARCO Smelter Site Remediation
El Paso, Texas

June 2015
Figure 3
Legend

- Extraction Well
- Photograph Location
- Slag Piles
- South Arroyo within OHWM
- South Catchment Basin
- Eastside Track Channel
- Central Track Channel
- Westside Track Channel
- UPBA Ephemeral Pond North Channel
- UPBA Ephemeral Pond
- UPBA Ephemeral Pond South Channel
- PBA Bottom
- Salt Cedar Removal Area
- Site Boundary
- Smeltertown Cemetery
- Railroad

Photograph Locations

June 2015

Figure 4
Mitigation Areas

- Channel Restoration
- Re-vegetation
- Salt Cedar Removal

Texas Custodial Trust  
Former ASARCO Smelter Site Remediation  
El Paso, Texas

Mitigation Areas

- Lower Parker Brothers Arroyo
- North Arroyo
- South Arroyo
Appendix A

August 11th, 2011 USACE Meeting Minutes and Directions to Site
ASARCO Remedial Action and Restoration Project USACE Pre-
Application Meeting Minutes

Date: August 11, 2011

Attendees:

**U.S. Army Corps of Engineers:**

Rick Gatewood (RG), USACE Albuquerque District Regulatory Division

**Malcolm Pirnie:**

Scott Brown (SB), Project Manager

Cory Zorn (CZ), Senior Engineer

Doug Solon (DS), Field Supervisor

Scott Walker (SW), Senior Project Ecologist

Courtney Abshire (CA), Project Ecologist

**Location: Former ASARCO Smelter site (Site), El Paso, Texas**

Meeting commenced at approximately 0900 at the El Paso (City) ASARCO Site office. RG was welcomed and introductions where made. All listed attendees present. SB commenced discussion of listed agenda items pertaining to the ASARCO Remedial Action and Restoration Project (henceforth referred to as the Project).

**Agenda:**

1. Site Background

   SB discussed site history relating to transfer of site ownership from ASARCO to the Texas Custodial Trust in 2009 as part of a Department of Justice agreement stemming from bankruptcy proceedings initiated in 2005.

   SB reviewed site ground water (GW) issues as they pertain to the transit of chemicals of concern (COCs) within and through the Site with special emphasis on Arsenic and Lead. Arroyos within the Site have been historically used as deposition areas for smelter plant by-products. Site activities resulted in impacts to the former Parker Brothers Arroyo (PBA). A significant Arsenic plume exists within and around the PBA. SB highlighted the need to address this issue as part of the proposed action to restore flow to the PBA.
2. Project Overview

SB gave an overview of the proposed remedial actions:

- Installation of a GW cut-off wall on Site property east of Interstate 10 upstream of north and south TXDOT catchment basins. The purpose of this cut-off wall is to force offsite GW to the surface thereby preventing continued GW transit through the PBA area.

- Excavation of soils at north and south TXDOT catchment basins to remove impacted materials and installation of impervious layers within the basins to exclude surface water from contacting GW.

- Excavation of soils in areas adjacent to Union Pacific (UP) Rail line to remove COCs (retention area on northeast side of rail line and area west of rail line (referred to as the “Bone Yard”).

- Creation of a lined landfill adjacent to the former PBA as a repository for material generated during Site remediation.

- Re-establishment of flow through and restoration of the PBA.

- Installation of reactive barriers within the PBA. These barriers function to convert metals which may be present in transiting GW to a non-mobile form thereby preventing further movement via GW towards the Rio Grande.

- In situ sequestration of COCs downstream of reactive barriers (specifically to precipitate Arsenic and prevent its transmission via GW).

- Capping of the remainder of the Site.

SB emphasized the need to prioritize construction of the landfill in order to facilitate continued remedial action. Completion of the remaining proposed remedial actions would follow starting with installation of the cut-off wall.

3. Potential Waters of the U.S.

SW discussed the existing 42 inch piping which carries flow below ordinary high water to concrete canal and into Rio Grande. The pipeline experienced a blow-out during the 2006 extreme weather event. This rupture is located within the former PBA and results in pooling within the PBA during high flow events. This pipeline will need to be removed to allow construction of the landfill and allow remediation to move forward.

SB detailed the initial construction of the pipeline; pipeline lies within a trench overlaid with iron frame and mesh and covered by slag.
SW discussed that water within PBA does not flow into the Rio Grande except during extreme rainfall events.

CZ noted the presence of an 8 inch sewer line within the 42 inch pipe. This sewer line is being removed as part of the Site remediation.

4. Possible Permitting Options.

RG stated that the proposed project scope would most likely fall under a Nationwide Permit 27. RG emphasized the need to state the total square footage of restored drainage within the pre-construction notification (PCN). RG also emphasized the need to develop a comprehensive mitigation and monitoring plan as required under NWP 27. This plan should accompany the PCN.

5. Conduct Site Tour.

Site tour was commenced at 0930. The general location of each proposed remediation action or area of interest was visited with accompanying discussion.

RG touched on the upcoming revisions to the Nationwide permit program effective 2012. RG stated that any activity permitted under the present NWPs would need to be completed within one year of the adoption of the 2012 NWPs. Continuation of previously permitted activities beyond the one year window would require reevaluation under the new NWP conditions.

SW queried RG as to the possibility of acquiring an extension to the one year completion window. RG stated that this was possible but that it would add an additional administrative requirement to the project.

42 Inch Stormwater pipeline outfall, PBA retention pond:

SW showed the location of the existing 42 Inch drainage outfall and discussed the existing flow path through the pipe. SW also discussed flow during high flow periods describing the inundation of adjacent areas along the BNSF rail line on western border of Site. SW highlighted the overflow path around the PBA retention pond berm.

SW/SB discussed landfill construction details emphasizing the need to remove the 42 in. pipe and possible actions to re-route flow temporarily through PBA.

42 Inch blow-out, PBA:

SB discussed details of pipeline construction and potential removal. SB also discussed the plans to re-terrace face of PBA opposite the proposed landfill. SB stated that the arroyo is planned to eventually be turned over to the El Paso Water Utility Commission.
RG queried as to whether the arroyo would fall under a conservation easement, SB stated that this was the case and also stated the area had recently been re-zoned for development of natural space (smartcode designation T1) by the City.

Party proceeded up the PBA; SB discussed potential flow path designs for eventual PBA restoration.

SB stated that the Texas Commission of Environmental Quality (TCEQ) was the primary regulatory agency for the Project with the Environmental Protection Agency (EPA) acting in an oversight capacity. SB also stated that Site characterization has shown slag within the footprint of the landfill is mostly inert and that the Bone Yard area may be a primary source of COCs in the area.

RG inquired as to the level of base line data for Site characterization and the number of monitoring wells planned for installation as part of landfill monitoring. SB stated that the initial proposal is to install 1 monitoring well upstream of the landfill and 2 downstream. SB also stated that several more downstream wells exist and that the overall site monitoring plan will utilize a portion of the existing 137 on-site monitoring wells with additional wells installed as needed. SB also stated that pre-existing base-line data exists for the Site (6-8 years of data) which has been utilized as part of Site characterization.

42 Inch Stormwater pipeline infall:

SW discussed how a pre-existing berm excludes flow into the PBA.

SB/CZ discussed need to construct a spillway within the berm to bring water into the PBA upon removal of pipeline. Modeling shows that all water enters from the catchments east of Interstate 10 via the bermed arroyo.

Union Pacific Railroad crossing bridge:

At this elevated vantage SB highlighted the location of the Bone Yard as well as the location of the historical 1905 culvert throughway which passes under the Union Pacific rail line.

SW noted the area of pooling adjacent to rail line. SB restated the need to remove COCs from areas of the preferred flow path.

Arroyo segment adjacent to slag pile between Interstate 10 and UP rail line:

SW narrated the events of the 2006 extreme weather event and its effects on the slag pile which necessitated immediate action to reinforce the pile in order to limit/prevent further pile erosion and potential re-suspension of fines.

SB stated that as part of the proposed remediation plan the pile will be re-contoured and covered with soil to encapsulate the pile in place. SB stated that TXDOT may install another lane
along Interstate 10 which may require Site plan modifications, specifically re-contouring of slag pile. Project personnel are in discussion with TXDOT in regards to this possibility.

**South Arroyo Catchment Basin:**

SB discussed details of cut-off wall installation. Due to topographic and geologic conditions within the area the cut-off wall will need to be continuous across the north and south arroyos. An impervious layer is proposed to be installed below the catchment areas to exclude surface water from Site groundwater. Slag piles within the south arroyo will also be removed.

SW and RG discussed the presence of salt cedar within the catchment basin and the need to remove said cedar. Although salt cedar may act as habitat for the Southwestern Willow Flycatcher, a federally endangered species, the small area of impact and disturbed nature of the area does not indicate suitable Southwestern Willow Flycatcher habitat; RG concurred. Also, stormwater detention basins require maintenance which would entail the periodic removal of vegetation.

SB suggested that open ACB (articulated concrete block) could be used as a maintenance surface within the catchment basins which would allow for growth of herbaceous vegetation.

RG enquired as to the City’s approval of the overall plan. SB stated that the City will issue a grading permit for the landfill and drainage plan for removal of 42” stormwater pipeline. SB also indicated the City is aware of the overall restoration plan.

RG stated that he saw no issue with removal of the 42 Inch stormwater pipeline from a 404 standpoint. RG further stated that for jurisdictional determination the Corps looks for a hydrologic connection with the Rio Grande. The PBA has been substantially altered by ASARCO and TXDot so as to lose its hydrologic connection.

SB stated that the EPA was highly supportive of the efforts to improve quality of ground water reaching the Rio Grande and had no issues with the presently proposed actions.

**North Arroyo Catchment Basin:**

SW discussed the installation of the cut-off wall and exclusion layer.

SB queried RG if today’s meeting could be referenced on the City grading permit application to meet the Corps consultation requirement. RG stated that the meeting may be referenced and that there was no need for a Corps permit to allow for removal of the 42 inch stormwater pipeline to construct the landfill.

RG and SW discussed the possible timeline for PCN submittal. No hard deadline was set but SW stated that the paperwork would be submitted as soon as possible and most likely would be ready for submittal within the next two months. RG stated that it was not necessary to coordinate with him on all aspects of the project design but that a detailed mitigation and
monitoring plan should be included and that project personnel should ensure that all aspects of the project are captured within the PCN package for coverage under NWP 27.

Tour completed at 10:15, all participants returned to Site offices, RG departed Site.
Directions to Unknown road
43.0 mi – about 46 mins
Scott Walker
Cell 361-443-9454
1. Head **north** on **S Main St**
   - go 249 ft
   - total 249 ft

2. Take the 1st right onto **E Lohman Ave**
   - About 4 mins
   - go 1.8 mi
   - total 1.9 mi

3. Turn right to merge onto **I-25 S**
   - About 5 mins
   - go 4.9 mi
   - total 6.8 mi

4. Merge onto **I-10 E**
   - Entering Texas
   - About 5 mins
   - go 32.0 mi
   - total 38.8 mi

5. Take exit 13 to merge onto **US-85 S**
   - About 5 mins
   - go 4.1 mi
   - total 42.9 mi

6. Turn left
   - About 2 mins
   - go 0.2 mi
   - total 43.0 mi

**Unknown road**

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2011 Google, INEGI

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.
Appendix B
Adjacent Property Owner Information
Adjacent Property Owners

Texas Custodial Trust
Former ASARCO Smelter Site Remediation
El Paso, Texas

March 2012
FIGURE B-1
<table>
<thead>
<tr>
<th>Map ID</th>
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<th>City</th>
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<tr>
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<td>499 ST MATTHEWS ST</td>
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Appendix C

Site Photographs
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<th>Photo No.</th>
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<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>08/10/11</td>
<td>Northeast</td>
<td>Slag pile adjacent to south excavation area which will be removed as part of remedial action.</td>
</tr>
<tr>
<td>2</td>
<td>08/10/11</td>
<td>East</td>
<td>South excavation area. Location of proposed groundwater diversion wall and lined retention area. Slag piles visible in the background.</td>
</tr>
<tr>
<td>Photo No.</td>
<td>Date</td>
<td>Direction Photo Taken</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>08/10/11</td>
<td>South</td>
<td>South excavation area southern TxDOT catchment basin (South Arroyo).</td>
</tr>
<tr>
<td>4</td>
<td>08/10/11</td>
<td>Southeast</td>
<td>South excavation area adjacent to southern TxDOT catchment basin (South Arroyo).</td>
</tr>
<tr>
<td>Property Name:</td>
<td>Location:</td>
<td>Project No.</td>
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</tr>
<tr>
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<tr>
<td>Former ASARCO Smelter Plant</td>
<td>ASARCO, El Paso TX</td>
<td>6835001.0000</td>
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<table>
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<tr>
<td>5</td>
<td>08/10/11</td>
<td>East</td>
<td>South excavation area adjacent to southern TxDOT catchment basin (South Arroyo).</td>
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<table>
<thead>
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<td>North excavation area adjacent to northern TxDOT catchment basin. Location of proposed groundwater diversion wall and lined retention area (North Arroyo).</td>
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### PHOTOGRAPHIC LOG

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<td>6835001.0000</td>
</tr>
</tbody>
</table>

#### Photo 7

**Date:** 08/10/11  
**Direction Photo Taken:** West  
**Description:**  
North excavation area continued. Location of proposed earthen groundwater cut-off wall and lined retention area (North Arroyo)

#### Photo 8

**Date:** 08/10/11  
**Direction Photo Taken:** South  
**Description:**  
Upper Parker Brothers Arroyo (PBA) just downstream of the northern TxDOT catchment basin outfall between I-10 and Union Pacific railroad. Note slag deposition and lack of vegetation.
<table>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>9</td>
<td>08/10/11</td>
<td>South-west</td>
<td>Upper PBA. Note lack of vegetation. Slag and debris deposition in foreground. Large slag pile visible in background.</td>
</tr>
<tr>
<td>10</td>
<td>08/10/11</td>
<td>North</td>
<td>Additional view of Upper PBA further downstream. Note lack of vegetation; large slag pile visible in background.</td>
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</tbody>
</table>
### PHOTOGRAPHIC LOG

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<td>North-west</td>
<td>Drainage channel (view downstream) adjacent to western Union Pacific rail line.</td>
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<tr>
<td>12</td>
<td>08/10/11</td>
<td>South-east</td>
<td>Additional view looking upstream along drainage channel adjacent to western Union Pacific rail line.</td>
</tr>
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<td>Property Name:</td>
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<td>Project No.</td>
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</tr>
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<td>6835001.0000</td>
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</table>

**Photo No. 13**

**Date:** 08/10/11  
**Direction Photo Taken:** West

**Description:**

View of former PBA taken adjacent to drainage canal overflow. Note extensive slag deposition and lack of vegetation.

---

**Photo No. 14**

**Date:** 08/10/11  
**Direction Photo Taken:** East-southeast

**Description:**

Former PBA looking “upstream” towards drainage canal overflow. Note extensive slag deposition and lack of vegetation.
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<th>Description:</th>
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<tbody>
<tr>
<td>15</td>
<td>08/10/11</td>
<td>East-southeast</td>
<td>Additional view from further &quot;downstream&quot; along former PBA looking &quot;upstream&quot;. Note extensive slag deposition and lack of vegetation.</td>
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Appendix D

Lists of State and Federally Endangered, Threatened and Rare Species for El Paso County
EL PASO COUNTY

AMPHIBIANS

Northern leopard frog  
*Rana pipiens*

streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water; eggs laid March-May and tadpoles transform late June-August; may have disappeared from El Paso County due to habitat alteration.

BIRDS

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<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Federal Status</th>
<th>State Status</th>
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<tbody>
<tr>
<td>American Peregrine Falcon</td>
<td><em>Falco peregrinus anatum</em></td>
<td>DL</td>
<td>T</td>
</tr>
<tr>
<td>Arctic Peregrine Falcon</td>
<td><em>Falco peregrinus tundrius</em></td>
<td>DL</td>
<td></td>
</tr>
<tr>
<td>Baird's Sparrow</td>
<td><em>Ammomanus bairdii</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferruginous Hawk</td>
<td><em>Buteo regalis</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Least Tern</td>
<td><em>Sternus antillarum athalassos</em></td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Mexican Spotted Owl</td>
<td><em>Strix occidentalis lucida</em></td>
<td>LT</td>
<td>T</td>
</tr>
<tr>
<td>Montezuma Quail</td>
<td><em>Cyrtonyx montezumae</em></td>
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</table>

American Peregrine Falcon  
year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon  
migrant throughout state from subspecies’ far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Baird's Sparrow  
shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties.

Ferruginous Hawk  
open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas.

Interior Least Tern  
subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony.

Mexican Spotted Owl  
remote, shaded canyons of coniferous mountain woodlands (pine and fir); nocturnal predator of mostly small rodents and insects; day roosts in densely vegetated trees, rocky areas, or caves.

Montezuma Quail  
open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates.
EL PASO COUNTY

BIRDS

<table>
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<th>Federal Status</th>
<th>State Status</th>
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<tr>
<td><strong>Northern Aplomado Falcon</strong> Falco femoralis septentrionalis</td>
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<td>E</td>
</tr>
<tr>
<td>open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peregrine Falcon</strong> Falco peregrinus</td>
<td>DL</td>
<td>T</td>
</tr>
<tr>
<td>both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies’ listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.</td>
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<tr>
<td><strong>Prairie Falcon</strong> Falco mexicanus</td>
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</tr>
<tr>
<td>open, mountainous areas, plains and prairie; nests on cliffs</td>
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<td></td>
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<tr>
<td><strong>Snowy Plover</strong> Charadrius alexandrinus</td>
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<tr>
<td>formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast</td>
<td></td>
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</tr>
<tr>
<td><strong>Southwestern Willow Flycatcher</strong></td>
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<tr>
<td>thickets of willow, cottonwood, mesquite, and other species along desert streams</td>
<td></td>
<td></td>
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<tr>
<td><strong>Sprague's Pipit</strong> Anthus spragueii</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.</td>
<td></td>
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<tr>
<td><strong>Western Burrowing Owl</strong> Athene cunicularia hypugaea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Western Snowy Plover</strong> Charadrius alexandrinus nivosus</td>
<td></td>
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<tr>
<td>uncommon breeder in the Panhandle; potential migrant; winter along coast</td>
<td></td>
<td></td>
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<tr>
<td><strong>Western Yellow-billed Cuckoo</strong> Coccyzus americanus occidentalis</td>
<td>C;NL</td>
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<tr>
<td>status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept</td>
<td></td>
<td></td>
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</tbody>
</table>

FISHES

<table>
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<tr>
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<th>Federal Status</th>
<th>State Status</th>
</tr>
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<tr>
<td><strong>Bluntnose shiner</strong> Notropis simus simus</td>
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<tr>
<td>extinct; Rio Grande; main river channel, often below obstructions over substrate of sand, gravel, and silt; damming and irrigation practices presumed major factors contributing to decline</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rio Grande silvery minnow</strong> Hybognathus amarus</td>
<td>LE</td>
<td>E</td>
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</table>
extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves

Annotated County Lists of Rare Species

**EL PASO COUNTY**

**FISHES**

Extermination data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

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<tr>
<th>Federal Status</th>
<th>State Status</th>
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</table>

**INSECTS**

A Royal moth *Sphingicampa raspa*

woodland - hardwood; with oaks, junipers, legumes and other woody trees and shrubs; good density of legume caterpillar foodplants must be present; Prairie acacia (Acacia augustissima) is the documented caterpillar foodplant, but there could be a few other woody legumes used

A tiger beetle *Cicindela hornii*

greatland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains. the life cycle probably takes two years so larvae would always be present in burrows in the soil

Barbara Ann's tiger beetle *Cicindela politula barbarannae*

limestone outcrops in arid treeless environments or in openings within less arid pine-juniper-oak communities; open limestone substrate itself is almost certainly an essential feature; roads and trails

Poling's hairstreak *Fixsenia polingi*

oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept

**MAMMALS**

Big free-tailed bat *Nyctinomops macrotis*

habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Black bear *Ursus americanus*  
T/SA;NL  
T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Black-footed ferret *Mustela nigripes*  
LE

extirpated; inhabited prairie dog towns in the general area

Black-tailed prairie dog *Cynomys ludovicianus*

dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups
Annotated County Lists of Rare Species

**EL PASO COUNTY**

**MAMMALS**

<table>
<thead>
<tr>
<th>Species</th>
<th>Federal Status</th>
<th>State Status</th>
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<tbody>
<tr>
<td>Cave myotis bat</td>
<td></td>
<td></td>
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<tr>
<td>Myotis velifer</td>
<td></td>
<td></td>
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<tr>
<td>colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore</td>
<td></td>
<td></td>
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<tr>
<td>Desert pocket gopher</td>
<td>Geomys arenarius</td>
<td></td>
</tr>
<tr>
<td>cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds; life history not well documented, but presumed to eat mostly vegetation, be active year round, and bear more than one litter per year</td>
<td></td>
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</tr>
<tr>
<td>Fringed bat</td>
<td>Myotis thysanodes</td>
<td></td>
</tr>
<tr>
<td>habitat variable, ranging from mountainous pine, oak, and pinyon-juniper to desert-scrub, but prefers grasslands at intermediate elevations; highly migratory species that arrives in Trans-Pecos by May to form nursery colonies; single offspring born June-July; roosts colonially in caves, mine tunnels, rock crevices, and old buildings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gray wolf</td>
<td>Canis lupus</td>
<td>LE E</td>
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<tr>
<td>extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands</td>
<td></td>
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</tr>
<tr>
<td>Long-legged bat</td>
<td>Myotis volans</td>
<td></td>
</tr>
<tr>
<td>in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night; single offspring born June-July</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pale Townsend's big-eared bat</td>
<td>Corynorhinus townsendii pallescens</td>
<td></td>
</tr>
<tr>
<td>roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pecos River muskrat</td>
<td>Ondatra zibethicus ripensis</td>
<td></td>
</tr>
<tr>
<td>creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western red bat</td>
<td>Lasiurus blossevillii</td>
<td></td>
</tr>
<tr>
<td>roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests; likely winter migrant to Mexico; multiple pups born mid-May - late Jun</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western small-footed bat</td>
<td>Myotis ciliolabrum</td>
<td></td>
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<tr>
<td>mountainous regions of the Trans-Pecos, usually in wooded areas, also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings; maternity colonies often small and located in abandoned houses, barns, and other similar structures; apparently occurs in Texas only during spring and summer months; insectivorous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuma myotis bat</td>
<td>Myotis yumanensis</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The Federal Status and State Status columns indicate the protected status of each species.*
EL PASO COUNTY

MAMMALS

Federal Status  State Status

desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female

MOLLUSKS

Federal Status  State Status

Franklin Mountain talus snail  Sonorella metcalfi

terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origin

Franklin Mountain wood snail  Ashmunella pasonis

terrestrial; bare rock, talus, scree; talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges

REPTILES

Federal Status  State Status

Big Bend slider  Trachemys gaigeae

almost exclusively aquatic, sliders (Trachemys spp.) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source; will bask on logs, rocks or banks of water bodies; breeding March-July

Chihuahuan Desert lyre snake  Trimorphodon vilkinsonii

mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures; secretive; egg-bearing; eats mostly lizards

Mountain short-horned lizard  Phrynosoma hernandesi

diurnal, usually in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrow when inactive; eats ants, spiders, snails, sowbugs, and other invertebrates; inactive during cold weather; breeds March-September

New Mexico garter snake  Thamnophis sirtalis dorsalis

nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water; home range about 2 acres; active year round in warm weather, both diurnal and nocturnal, more nocturnal during hot weather; bears litter July-August

Texas horned lizard  Phrynosoma cornutum

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scruffy trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

PLANTS

Federal Status  State Status

Comal snakewood  Colubrina stricta
in El Paso County, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop; the historic Comal County record does not describe the habitat; in Mexico, found in shrublands on calcareous, gravelly, clay soils with woody associates; flowering late spring or early summer

**Desert night-blooming cereus** *Peniocereus greggii var greggii*

Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April

**Hueco rock-daisy** *Perityle huecoensis*

north-facing or otherwise mostly shaded limestone cliff faces within relatively mesic canyon system; flowering spring-fall

**Sand prickly-pear** *Opuntia arenaria*

depth, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos; flowering May-June

**Sand sacahuista** *Nolina arenicola*

Texas endemic; mesquite-sand sage shrublands on windblown Quarternary reddish sand in dune areas; flowering time uncertain May-June, June-September

**Sneed's pincushion cactus** *Escobaria sneedii var sneedii*

xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands; flowering April-September (peak usually in April, sometimes opportunistically after summer rains; fruiting August - November

**Texas false saltgrass** *Allolepis texana*

sandy to silty soils of valley bottoms and river floodplains, not generally on alkaline or saline sites; flowering (May-) July-October depending on rainfall

**Wheeler's spurge** *Chamaesyce geyeri var wheeleriana*

sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds; flowering and fruiting at least August-September, probably earlier and later, as well
<table>
<thead>
<tr>
<th>Group</th>
<th>Name</th>
<th>Population</th>
<th>Status</th>
<th>Lead Office</th>
<th>Recovery Plan Name</th>
<th>Recovery Plan Stage</th>
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<tr>
<td>Birds</td>
<td>Yellow-billed Cuckoo (Coccyzus)</td>
<td>Western U.S. DPS</td>
<td>Candidate</td>
<td>Sacramento Fish And Wildlife</td>
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<td>northern aplomado falcon (Falco)</td>
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<td>Draft Recovery Plan for the</td>
<td>Draft Revision 1</td>
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<td>Interior pop.</td>
<td>Endangered</td>
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<td>Final Recovery Plan for the</td>
<td>Final</td>
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<td>Flowering Plants</td>
<td>Sneed pincushion cactus</td>
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<td>New Mexico Ecological Services</td>
<td>Sneed/Lee Pincushion Cactus</td>
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Appendix E
Agency Correspondence
September 14, 2011

Field Supervisor
Austin Ecological Services Field Office
U.S. Fish and Wildlife Service
10711 Burnet Road, Suite 200
Austin, Texas 78758

Re: ESA Informal Consultation for Site Restoration Work at the Former ASARCO Smelter in El Paso, Texas under a USACE Nationwide Permit # 27

Dear Sir or Ma’am:

Malcolm Pirnie, Inc., on behalf of Texas Custodial Trust (Trust) is submitting this package for your review under the Endangered Species Act.

The Trust is responsible for the remediation of the former ASARCO Smelter site (Site) located at 2301 W. Paisano Dr, El Paso, Texas. The Site is located within the city limits of El Paso, Texas (see Figure 1). The main smelter site occupied an area of approximately 120 acres bounded by U.S. Interstate Highway 10 (I-10) on the east and U.S. Highway 85 (Paisano Drive) on the west. The Trust also owns additional property west of Paisano Drive, and additional property east of I-10.

Proposed remediation activities include the following:

- Installation of a groundwater recovery system north and south of the Site.
- Excavation of soils at and near ground surface water from concerns.
- Excavation of soils in areas containing chemicals of concern (COCs) in the vicinity of the rail line.
- Creation of a lined landfill for disposal of COCs.
- Re-establishment of flora and fauna.
- Installation of permeable barriers.
- In situ sequestration of COCs in groundwater.
- Capping of the remainder of the Site.

As part of the planned site remediation activities the Trust intends to the excavate two catchment basins adjacent to the east side of I-10 within the boundaries of the former Site, as part of the proposed

Solutions for Life™
September 14, 2011

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Proposed remediation activities include the following:

- Installation of a groundwater cut-off wall on Site property east of I-10 upstream of north and south Texas Department of Transportation (TxDOT) catchment basins.
- Excavation of soils at north and south TxDOT catchment basins to remove sediments and installation of impervious layers within the basins to exclude surface water from contacting groundwater.
- Excavation of soils in areas adjacent to Union Pacific (UP) rail line to remove chemicals of concern (COCs) (retention area on northeast side of rail line and area west of rail line).
- Creation of a lined landfill adjacent to the former Parker Brothers Arroyo (PBA) as a repository for impacted material generated during Site remediation.
- Re-establishment of flow through and restoration of the PBA.
- Installation of permeable reactive barriers within the PBA.
- In situ sequestration of COCs downstream of reactive barriers (if needed) to treat contaminated groundwater.
- Capping of the remainder of the Site.

As part of the planned site remediation activities the Trust intends to the excavate two catchments basins adjacent to the east side of I-10 within the boundaries of the former Site, as part of the proposed...
construction of lined retention areas (see Figure 2). Excavation will result in the removal of vegetation within approximately 3.42 acres. Excavated areas have minimal vegetation consisting mainly of *Tamarix spp.* Small slag piles (to the east) adjacent to the southern excavation area will also be removed which may result in incidental removal of additional vegetation (see Figure 2 and attached photographic log).

Additional areas (totaling 2.21 acres) located between I-10 and UP rail line will also be excavated. These areas are highly disturbed and denuded of vegetation (see Figure 3 and photographic log).

A review of the threatened and endangered species lists for El Paso County, Texas, maintained by the U.S. Fish and Wildlife Service (USFWS) and the Texas Parks and Wildlife Department identified 16 federally and state listed threatened and endangered species and an additional 38 state-listed rare species that potentially occur within the county. Six species are federally listed or are candidates for federal listing and an additional nine species are state-listed only (see Table 1).

Proposed excavation areas are located within a highly disturbed site subject to continuous industrial and construction activities as well as impacts from motor-vehicle and railway traffic due to the adjacent I-10 and UP rail line. No permanent water sources are present within the excavation areas. Potentially suitable habitat for the Southwestern willow flycatcher (*Empidonax traillii extimus*) may be present within the excavation areas, but due to the areas highly disturbed nature, continuous human activity and small discontinuous distribution of areas totaling less than 6 acres, this species is not anticipated to be present. As such no impact is anticipated to listed federally threatened or endangered species.

The attached package is also being sent to the Texas Parks and Wildlife for review. Additionally, a permit review package for coverage under Nationwide Permit 27 will be submitted to the U.S. Army Corps of Engineers Albuquerque District Office. Your review of this package is appreciated.

If you have any questions or concerns, you may contact me at 512-370-3864 or via email: Scott.Walker@arcadis-us.com.

Respectfully,

Scott Walker
Project Ecologist

Enclosures: Figure 1: Regional Vicinity Map, Figure 2 & 3: Site and Photo Location Maps, Photo log; Table 1 Federal, State Listed Threatened/Endangered Species and Texas Parks and Wildlife Department’s Species of Concern, El Paso County;

cc: Roberto Puga – Trustee
    Scott Brown/Corey Zorn/Alicia Fogg (Malcolm Pirnie)
September 14, 2011

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Scott Brown/Corey Zorn/Alicia Fogg (Malcolm Pirnie)
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Mitigation Monitoring Plan for the Former ASARCO Smelter Remediation
Mitigation Monitoring Plan for the Former ASARCO Smelter Remediation

Former ASARCO Smelter Remediation, El Paso, Texas

June 2015

Report Prepared By:
Malcolm Pirnie, Inc.
1717 W. 6th Street
Suite 210
Austin, Texas 78703
512-451-1188
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Malcolm Pirnie has prepared this Mitigation Monitoring Plan (monitoring plan) for the Former ASARCO Remediation project on behalf of the Texas Custodial Trust (Trust) to address impacts to waters of the U.S. associated with the remediation and reclamation of the Parker Brothers Arroyo (PBA) within the former ASARCO smelter site (Site) located in El Paso, Texas. The remediation and reclamation activities (as proposed) will result in temporary impacts to 5.06 acres below ordinary high water mark (OHWM) of waters of the U.S. The proposed reclamation and restoration activities are intended to reduce the impacts to the Rio Grande River via surface and groundwater transported site contaminants and to re-establish normal flow through the PBA along with establishment of associated native vegetation along the affected reach.

This monitoring plan is intended to support the U.S. Army Corps of Engineers (USACE) Section 404 Clean Water Act Nationwide Permit (NWP) 27 (Aquatic Habitat Restoration, Establishment, & Enhancement Activities) application. This monitoring plan is prepared consistent with the Guidelines for NWP 27 in New Mexico and Texas within Corps of Engineers Albuquerque District (August, 2011). This monitoring plan is assumed to be conditional; pending a final determination by the USACE.

1.1. Project Background

The Trust has taken on the responsibility for the remediation and reclamation of the PBA within the former Site. The main smelter site occupied an area of approximately 120 acres bounded by U.S. Interstate Highway 10 (I-10) on the east and U.S. Highway 85 (Paisano Drive) on the west. The Trust also owns additional property west of Paisano Drive, and additional property east of I-10.

The former plant began operations in 1887 as a lead smelter with an initial capacity of 150 tons of ore per day. It was originally owned and operated by the Consolidated Kansas City Smelting and Refining Company. ASARCO was formed in 1899 and the facility was one of the original plants under the new company (Hydrometrics, 1998). In 2005 ASARCO declared Chapter 11 bankruptcy. As part of the bankruptcy proceedings the Trust was established in December 2009 to oversee the clean-up and eventual sale of the property.

The Site had operated for more than 110 years as a heavy industrial, custom metals smelting facility. Processes associated with this activity affected the soil, surface water and surrounding groundwater. Based on the findings of a series of inspections, ASARCO was required to complete four phases of a remediation investigation (RI). The Constituents of Concern (COCs) identified in the RIs include:
• Arsenic  • Cadmium
• Copper  • Chromium
• Iron  • Lead
• Selenium  • Zinc

In addition to the COCs, three water quality parameters were also identified:
• pH
• specific conductivity
• total dissolved solids (TDS)

In addition to the presence of COCs and water quality factors affecting surface and groundwater, flow paths and vegetation along and surrounding historical arroyos within the site have been disrupted over time from deposition of various materials and smelter byproducts resultant from on-site industrial activities.

1.2. Regulatory Context

The monitoring plan has been created to address monitoring requirements associated with coverage of described activities under NWP 27 within the USACE Albuquerque Regulatory District.

1.3. Mitigation Monitoring Plan Objectives

The objectives of this mitigation monitoring plan are:

1. Describe the mitigation method and how the anticipated function of the mitigation will address watershed needs.

2. Detail the arroyo mitigation actions

3. Define performance standards and detail a long-term monitoring and maintenance plan for the proposed arroyo mitigation areas.
2. Site Selection

Historically, the PBA flowed through the Site from east to west ultimately discharging into the Rio Grande. Over time the PBA has been filled with a variety of materials including slag cooled in-place, re-deposited slag, crushed rock, brick, metal, concrete fragments, and native soils which has eliminated normal surface flow through the arroyo. Additionally a 42 inch storm water drain was installed to bypass surface flow through the PBA and direct normal surface flow to a concrete canal and into the Rio Grande. During the pre-coordination meeting held on-site (August 11th, 2011) it was determined that as a result of the installation of the storm water drain the historical flow path of the PBA between the drain inlet just south of the Union Pacific rail line to the drain outfall adjacent to Paisano Drive could no longer be considered as jurisdictional waters of the U.S.

As part of the site-wide remediation the 42 inch drain line is being removed in order to allow for the construction of an approved lined landfill on-site which will function as a repository for affected soils excavated during site remediation. Due to this removal flow has been temporarily re-established within the PBA up to the 42 inch drain line outfall.

Flow is proposed to be re-established along the historic flow path of the PBA as close as practicable with consideration of overall remediation activities. In absence of obstructions, normal flows would travel along this path to receiving waters (Rio Grande River).

Surface flow still passes through a portion of the PBA designated as the Upper PBA. The Upper PBA begins just west of I-10 and terminates at the 42 inch drain pipe west of the UP rail line. Surface water feeds into the Upper PBA through two TxDOT catchment basins adjacent to the east side of I-10 which are in turn fed by two arroyos designated the South Arroyo and North Arroyo located off the main site on Trust property east of I-10.

During site visits on August 11th & 12th and September 16th, 2011 OHWM was delineated for the portions of the North and South arroyos as well as the Upper PBA which will be affected by the proposed remediation actions (see PCN Figure 2).

Impacts from the proposed project will take place within arroyos which have been heavily impacted from past industrial activities associated with ore smelting at the Site. The Trust proposes to conduct a mitigation project to remediate and restore flow through
affected arroyos to historic flow paths as close as practicable in consideration of overall site remediation activities.

2.1. Site conditions – Impacted Arroyos

The proposed project will result in impacts to existing arroyos within the former ASARCO boundaries. The arroyos have been previously impacted by historic and current land uses within the former ASARCO site. Additional characterization is provided below.

2.1.1. Soils

The predominant soil in the vicinity of the Site area is known as Delnorte-Canutillo association hilly soil. This soil type is characterized nearly level to steep soils that are shallow or very shallow, overlying caliche, or deep and gravelly throughout (USDA, 1971).

Soils at the former plant area are a mix of colluvial and fluvial sediments, with areas of extensive fill consisting of slag, soil, and other anthropogenic materials such as concrete and asphalt.

2.1.2. Hydrology

The two primary surface water features located west of the Site are the Rio Grande and the American Canal. The American Canal is used to divert the United States allotment of water from the Rio Grande. Water is released from Elephant Butte Reservoir to the Rio Grande during spring and summer and is used for irrigation and drinking water purposes. During fall and winter; flows in the Rio Grande can decrease significantly as most surface water is diverted into the American Canal.

In addition to the Rio Grande and the American Canal, there were historically two storm water collection ponds and five ephemeral drainage arroyos on-site which are generally dry except during or immediately after rain or snow events; only the PBA still exists on-site. These arroyos are the Parker Brothers Arroyo, Ponds 5 and 6 Arroyo, Pond 1 Arroyo, South Terrace Area Arroyo, and the Acid Plant Arroyo (Figure 2-1). The arroyos have been filled over time with a variety of materials including slag cooled in-place, re-deposited slag, crushed rock, brick, metal, concrete fragments, and native soils. These arroyos convey most groundwater flow and impact groundwater recharge and transport of contaminants through the Site.

Groundwater near the Site occurs primarily within an unconfined alluvial aquifer with a saturated thickness of approximately 8 to 60 ft underlain by regional less permeable bedrock aquifer.
Limited information is available regarding the bedrock aquifer; however references indicate little to no permeability (Alvarez and Buckner, 1980) and minimal groundwater flow. Static water levels in sandstone bedrock wells are consistently approximately thirty feet lower than paired wells completed in alluvium, which indicates minimal hydraulic connection between the aquifers. A boring made into the shale bedrock material was dry. All available data suggest that groundwater flow in the bedrock is minimal and does not have a significant hydraulic connection with alluvium groundwater. Based on these physical characteristics, groundwater in the bedrock is not expected to be significantly impacted.

Groundwater levels in the floodplain typically fluctuate seasonally by approximately 1 to 3 ft in response to stage changes in the Rio Grande, which generally increases in March when water from the American dam is released into the river. Seasonal fluctuations of up to 8 ft are observed along the PBA due to enhanced groundwater recharge from ponded storm water. High water table conditions occur in July and August due to increased precipitation, with low water table conditions occurring from November through February as precipitation decreases. Groundwater can be found at a depth of 8 to 10 ft below ground surface (bgs) in the floodplain and at a depth of 50 to 60 ft bgs in the upland portion of the Site. Groundwater in the alluvial aquifer generally flows west and southwest through the Site toward the Rio Grande. Groundwater from the Site ultimately
discharges to the Rio Grande and sections of the American Canal. The Rio Grande is generally a gaining stream as it flows along the Site; however it can also recharge groundwater in the floodplain during short periods as the river stage increases when water is released from the American Dam.

2.1.3. Vegetation
Surveyed vegetation within the area surrounding the former ASARCO site is classified as Mesquite-Sandsage Shrub type (14) (McMahon et al, 1984). Associated plants include fourwing saltbush, palmella, mormon tea, sotol, sand dropseed, mesa dropseed, spike dropseed, blue grama, black grama, chino grama, broom snakeweed, and devil’s claw.

2.2. Site Conditions – Proposed Mitigation Site
As noted above the project will restore flow through portions of the PBA as well as improve flow and re-establish native vegetation along remediated areas within the Upper PBA and portions of affected arroyos east of I-10. The site provides significant opportunity to restore this valuable habitat type in a system that has been significantly altered by anthropogenic disturbances.

2.2.1. Soils
Soils within the proposed mitigation site are composed primarily of a mix of colluvial and fluvial sediments, with areas of extensive fill consisting of slag, soil, and other anthropogenic materials such as concrete and asphalt.

2.2.2. Hydrology
The proposed mitigation site is influenced primarily by seasonal groundwater flux due to changes in the Rio Grande. Additional groundwater flux passes through the area from east to southwest as well as seasonal changes within the PBA from enhanced groundwater recharge from ponded storm water. The proposed mitigation site occurs within the 100-year floodplain of the Rio Grande.

2.2.3. Vegetation
Vegetation present within the affected areas was noted during site visits on August 11-12th and September 16th 2011. Vegetation present within areas east of I-10 consisted primarily of Tamarix and bermudagrass in addition to the following species: mormon tea, catclaw mimosa, lotebush, honey mesquite, sotol, sunflower, sand dropseed, mesa dropseed and blue, black and chino grama (see PCN Photolog: Photos 1-7).

Minimal vegetation exists within the proposed affected areas west of I-10 (see PCN Photolog: Photos 8 & 9). The following species were identified within the affected areas west of I-10: catclaw mimosa, mormon tea, fourwing saltbush, honey mesquite, allthorn, broom snakeweed and devil’s claw.
3. Mitigation Plan

One of the primary goals of the ASARCO remediation is to reduce the impacts to the Rio Grande and American Canal resultant from transport of on-site soil contaminants primarily via groundwater (GW), and to a lesser degree by surface water run-off. Storm water detained within TxDOT catchment basins east of I-10 as well as storm water falling on the upper portions of the PBA just west of I-10 provide a continual downward head for contaminants present in this area and is a significant contributor to groundwater recharge. Arroyos in and around the site convey most GW flow and have a great impact on GW recharge and transport of contaminants through the Site.

Preliminary estimates suggest that approximately 60 percent of the GW flow beneath the property moves through the historic PBA. Action is required to remove sources of COCs and isolate surface water from groundwater within the Site in order to limit the transport of contaminants off site. An effort will be made to decrease the amount of surface water infiltrating into GW, which will reduce the groundwater flux in the PBA.

In addition to the planned actions to reduce surface and GW emissions the ASARCO remediation process also proposes to reclaim and re-establish flow through the PBA as well as re-establishing native vegetation along the affected arroyos (Upper PBA and PBA).

3.1. Elements of Mitigation Plan

The mitigation plan described above includes the following construction and planting actions:

1. Installation of a GW diversion system consisting of a series of extraction wells on Site property east of I-10 upstream of north TxDOT catchment basin.

2. Excavation of soils at north and south TxDOT catchment basins to remove potential sources of COCs and installation of low permeability layers within the basins to exclude surface water from GW.

3. Removal of slag piles present within the South arroyo upstream of the south TxDOT catchment basin to remove potential source of COCs.

4. Excavation of soils in areas adjacent to UP rail line to remove potential sources of COCs (retention area on northeast side of rail line and area west of rail line).
5. Restoration of Upper PBA to address prior channelization. Includes excavation of affected soils and installation of a low permeability liner.

6. Restoration and re-establishment of normal flow through the PBA. Includes excavation of affected soils, installation of low permeability liners, and installation of permeable reactive barriers and potential use in-situ sequestration of COCs.

7. Removal of Salt Cedar within areas of the North Arroyo and upland area adjacent to South Arroyo

8. Site preparation, which may include establishing a plant staging area and installing sediment and erosion control measures (if necessary).

9. Planting of selected native species along affected arroyos to re-establish native habitat.

10. Short-term (i.e., post-planting) management, which includes evaluating potential sediment and erosion issues and/or controlling invasive non-native species that establish within the restoration site.

11. Additional plantings after one growing season, if necessary.

These elements of the mitigation plan are described in detail below.

For applicable aspects of this remediation process the USACE Best Management Practices (BMP) and General Conditions for projects located in Waters of the U.S. will be followed. Appropriate sediment and erosion control devices will be implemented as necessary during construction of the project. Controls such as silt fence or straw bales, sediment traps, and temporary seeding will be implemented on all areas disturbed during construction in accordance with requirements of a NWP.

3.1.1. Groundwater Exclusion System

Installation of the GW diversion system will consist of a series of up to 3 wells located within the North arroyo east of I-10 (see PCN Figure 3 for approximate locations). Extraction wells will collect water which would normally transit the Site as GW and release it to the surface in a controlled manner into lined basins where the water will ultimately transit and leave the Site via surface flow. This conversion of GW to surface water, in conjunction with lined retention basins, will reduce the GW flux flowing through the site resulting in a reduced GW transport of COCs off site.

Upon completion of the extraction wells and lined basins, affected areas above the OHWM of the North arroyo will be re-vegetated with approved native species.
3.1.2. Lined Catchment Basins

Lined catchment basins will be constructed to encompass the affected areas of the South arroyo up to and including the existing TxDOT catchment basin adjacent to I-10 (see PCN Figure 3). Basin construction will require removal of existing vegetation (composed mainly of non-native invasive *Tamarix spp.*) to facilitate excavation of impacted soils within the designated basin footprints to remove potential sources of COCs. Upon completion of excavation a liner system will be installed and non-impacted native soil will be used to backfill the excavation to pre-existing contours except in areas where re-grading is required to reduce ephemeral ponding. The liners will prevent the infiltration of surface water into GW thereby reducing the overall flux of GW through the site.

Once complete, any affected areas surrounding the basins will be re-vegetated with approved native species.

3.1.3. Removal of Slag Piles

Slag piles previously deposited below the OHWM of the South arroyo (see PCN Figure 3) will be removed and deposited in approved on-site areas. Removal of slag piles will necessitate removal of surrounding vegetation consisting mainly on non-native invasive *Tamarix spp.* Once removed affected areas will be re-vegetated with appropriate native vegetation.

3.1.4. Salt Cedar Removal

Salt cedar (*Tamarix spp.*) removal will occur within a portion of the North Arroyo below the OHWM and within an upland area adjacent to the South Arroyo (see PCN Figure 3). Approved herbicides will be utilized for the removal.

3.1.5. Restoration of Upper Parker Brothers Arroyo

Restoration of the Upper PBA will consist of excavation of impacted soils to remove potential sources of COCs and re-establishment of flow path to better match historical conditions. Approved native vegetation will be established along the banks in order to establish vegetative habitat along the restored reach. Excavated impacted soils will be deposited in approved on-site landfills or other approved areas.

3.1.6. Restoration of Parker Brothers Arroyo

Restoration of the PBA will consist of excavation of impacted soils to remove potential sources of COCs, subsequent installation of a low permeability layer to minimize GW infiltration, and re-establishment of grade to allow for normal ephemeral flow through the PBA to the Rio Grande. Excavated areas will be backfilled with non-impacted soils, rip-rap and gabions to establish grade (see PCN Appendix G: Drainage and Grading Plan Figures). Flow path will be established to match the historical path as close as
practicable. Approved native vegetation will be established along the banks in order to re-establish vegetative habitat along the restored reach.

### 3.1.7. Site Planting Preparation

A plant staging area will be established (if necessary) on site so that plants can be maintained until they are planted. Plant delivery will be coordinated to ensure that planting will begin immediately. The perimeter of the proposed mitigation site will be marked with florescent flagging, and all planting polygons will be delineated in the field prior to conducting any planting. Any necessary sediment and erosion control measures will be installed.

### 3.1.8. Mitigation Planting

All identified locations within the proposed mitigation site will be consistent with the planting details. Final planting details will be prepared following the biological benchmark survey and will be submitted with the first year report, which is anticipated to be completed in summer 2016. All plant stock will be planted in accordance with a designated site planting plan. All planting will occur under the oversight of a qualified scientist.

All plants will be purchased from a licensed nursery grower that specializes in native plants. The contracting nursery will acclimate plant materials by growing plants in full sun conditions for at least 30 days before planting (i.e., not inside a greenhouse, under glass, under shade cloth). The container grown plants will be grown in the contract containers for a minimum of 90 days before delivery.

### 3.1.9. Post-Planting Management

A post-planting site survey will be conducted 3 to 6 months following planting activities. The qualitative survey will focus on evaluating sediment and/or erosion issues that may be threatening the survivability of planted stock, as well as any invasive non-native species that may have established within the planting area.

Depending upon the invasive non-native species of concern that establish within the proposed mitigation site, maintenance will consist of manual and/or chemical control of these species. Chemical control will only be used on species where manual control is not effective. Maintenance will be conducted at least semiannually (spring and fall), for a minimum of 5 years. Additional information regarding long-term maintenance is presented in Section 4.1.

### 3.1.10. Additional Plantings

A survivability survey will be conducted after one growing season following the completion of all planting activities. If significant mortality occurs after the first growing season (i.e., >20 percent mortality), then the original planted stock will be replaced.
In subsequent years, plants will be replanted only if total cover falls below the performance standards and contingency measures as recommended (i.e., <80 percent success rate).
Compliance monitoring will be conducted for at least 5 years following all restoration plantings, consistent with requirements of the NWP. If the performance standards defined below are met after 5 years, the Trust will petition the USACE to be released from further monitoring requirements. If performance standards are not met after 5 years, compliance monitoring will continue until the requirements are satisfied. Compliance monitoring will focus on survivorship and total percent cover of native vegetation, as well as monitoring the establishment of invasive non-native plant species within the proposed mitigation site.

The performance standards for this mitigation plan are:

1. Maintain an average survivability rate of 60 percent of the planted areas for the first year; 80 percent for following years.
2. Maintain less than or equal to 10 percent vegetative cover of non-native species within the planted areas.
3. Maintain a low rate of erosion within affected areas of arroyos.

Compliance monitoring for plantings will be facilitated by annual quantitative monitoring using 1-square-meter quadrats. Transects will be established through the long axis of each defined planting area, with quadrats established every 10 feet along each transect. The outer extents of each transect will be permanently demarcated with a ½-inch polyvinyl chloride (PVC) pipe to a height of at least 5 feet above the soil surface (photo points). Photographs will be taken annually at each photo point along the extent of transects. Photographs will also be taken of the proposed mitigation site and surrounding habitats.

Compliance monitoring will consist of conducting site visits semiannually (spring and fall) by a qualified scientist. The spring visit will involve a qualitative assessment of non-native invasive species establishment within the proposed mitigation site and taking photographs at each photo point. The fall site visit will consist of data collection at all sample plot locations and taking photographs at each photo point.

A global positioning system (GPS) reading will be obtained at each sample plot location. GPS positions and final monitoring locations will be provided as part of the baseline monitoring report. Within each plot, four measurements will be taken annually:
• Identification of all species present
• Percent cover for each species
• Total percent cover of vegetation.
• Total percent cover of invasives

All cover class measurements will be recorded using cover class midpoints (Table 4-1).

**Table 4-1: Cover Class Midpoints Used for Annual Vegetation Monitoring**

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<thead>
<tr>
<th>Percent Cover Range</th>
<th>Cover Class Midpoint$^1$</th>
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<tr>
<td>&lt; 1%</td>
<td>0.5</td>
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<tr>
<td>1 to 5 %</td>
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<tr>
<td>6 to 15 %</td>
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<td>16 to 25 %</td>
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<td>&gt; 95 %</td>
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$^1$Cover classes in Daubenmire (1959) but modified to split the 5 to 25% class into two classes.

Compliance monitoring for arroyo erosion rates will be facilitated by annual quantitative monitoring of affected arroyos by utilizing Rosgen level 2 monitoring procedures (Rosgen, 1996). Representative cross-sectional transects will be established along the affected reaches and permanently demarcated by placement of ½-inch polyvinyl chloride (PVC) pipes to a height of at least 5 feet above the soil surface at high banks of each transect.

Compliance monitoring will be conducted during the semiannual site visit in the fall by a qualified scientist. Cross-sectional data will be acquired in accordance with published survey procedures (reference Harrelson et al, 1994) at each reference cross-section. In addition, a representative pebble count and longitudinal profile will be determined for the entire length of the affected reach. This survey will provide a quantitative morphological assessment of each reference cross-section and the overall affected reach to allow for determination of compliance with plan standards.

A baseline monitoring report will be prepared immediately following all planting activities and designated arroyo reference reach cross-section surveys to establish baseline conditions for comparison to subsequent monitoring results. A monitoring report will be prepared each year, for 5 years, and provided to the USACE by January 31 of the year subsequent to all data collection, starting after the first growing season. The overall
The objective of each monitoring report will be to illustrate progress toward, or deviation from, stipulated performance standards. This will be achieved by summarizing data and providing comparisons to data collected during previous years.

4.1. Adaptive Management

Adaptive management will be performed at the proposed mitigation site based upon observations and results of the compliance monitoring program. The objectives of adaptive monitoring are to facilitate development of the restored arroyo native vegetation community and maintain progress toward articulated performance standards. To increase the likelihood of restoration success, the ability to react to the dynamic nature of restored systems is the basis for adaptive management.

Management recommendations will be made and implemented based on an analysis of data obtained during the monitoring events. Data collected regarding the performance standards will be evaluated to gauge whether satisfactory progress is being made. If progress is not observed, management actions will be recommended and implemented to meet the performance standards within the 5-year monitoring period. Each of the steps in the adaptive management program (i.e., monitoring, assessment, evaluation, recommendation and implementation) will interact with the preceding steps to create a continuous process that builds upon originally stated goals and lessons learned from past experiences.

If progress toward meeting performance standards is not evident following any complete year of monitoring, the potential for successful restoration of the proposed mitigation site will be evaluated and contingency measures will be proposed in the annual monitoring report. Potential adaptive management actions include, but may not be limited to the following:

1. As noted in Section 3.1.10, additional enhancement plantings will be installed after the first growing season of compliance monitoring, and during subsequent years, if necessary to maintain the desired survivability rate of at least 60 percent in the first year and 80 percent in subsequent years. The proposed mitigation site is not anticipated to meet these targets immediately; therefore, the best professional judgment of the scientist will be required to evaluate the need for enhancement plantings during the first 2 years of compliance monitoring.

2. Control invasive non-native plant species. Establishment of invasive species may affect the long-term success of the proposed mitigation site and places the restoration plantings at a competitive disadvantage. As noted above, the required maintenance will depend upon the weeds of concern. Maintenance will be conducted semiannually (spring and fall), for a minimum of 5 years.
5. Site Protection Instrument

The restored arroyo riparian habitat will be provided long-term protection to preserve the site for conservation.

The proposed mitigation site will be sustained and protected from anthropogenic disturbances. Upon completion of the project, the Trust or subsequent owner will be responsible for long-term management of the proposed mitigation site. If unforeseen changes to the proposed mitigation site occur, the Trust or subsequent owner will correspond with the USACE to determine actions to be implemented to continue maintenance of the proposed mitigation site.
6. Financial Assurances

The Trust has set aside appropriate funds to provide for long-term monitoring of the Site including the described restoration activities of the affected Waters of the U.S.
7. References


Appendix I
USACE Form 4345
U.S. ARMY CORPS OF ENGINEERS  
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT  
(33 CFR 325)  
OMB APPROVAL NO. 0710-0003  
EXPIRES: 31 AUGUST 2012  

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT  
Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

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(ITEMS BELOW TO BE FILLED BY APPLICANT)

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<td>E-mail Address - <a href="mailto:Scott.Walker@arcadis-us.com">Scott.Walker@arcadis-us.com</a></td>
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6. APPLICANT'S ADDRESS:

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<tr>
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STATEMENT OF AUTHORIZATION

11. I hereby authorize, Scott Walker to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

Former ASARCO Smelter Remediation

13. NAME OF WATERBODY, IF KNOWN (if applicable)

Parker Brothers Arroyo

14. PROJECT STREET ADDRESS (if applicable)

Address 2301 West Paisano Drive

City - El Paso State - TX Zip - 79922

15. LOCATION OF PROJECT

Latitude: -N 31.781 Longitude: -W -106.522

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID X01099900000230 & 250 Municipality

Section - Township - Range -

ENG FORM 4345, OCT 2010 EDITION OF OCT 2004 IS OBSOLETE Proponent: CECW-OR
17. DIRECTIONS TO THE SITE

Please see attached Appendix A for driving directions and map to Site

18. Nature of Activity (Description of project, include all features)
Remediation and reclamation of the Parker Brothers Arroyo (PBA) and associated arroyos intended to remove sources of constituents of concern (COCs) within soils, limit transport of COCs off-site via surface/groundwater (GW) and re-establishment of normal ephemeral flow through the PBA including re-establishment of native vegetative habitat along arroyo. Planned activities include installation of a GW diversion system, excavation of impacted soils, installation of low permeability layers within surface water catchments, re-establishment of flow paths to address historic channelization and fills, and planting of native vegetation to re-establish vegetative habitat along restored reaches.

Please see attached Section 1.3 Project Background and Description and 1.5 Construction Details for additional information.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
Over 100 years of industrial activities at the former ASARCO Smelter site has resulted in the modification or elimination of flow through historic arroyos within site property. Additionally, industrial activities have resulted in the deposition of various constituents of concern (COCs) within soils on-site. As part of the overall site remediation plan Texas Custodial Trust (Trust) intends to restore flow through and re-establish vegetation along historic arroyos on-site. The Trust also intends to take action to remove sources of COCs and to reduce/eliminate transport of COCs off-site via movement of surface and groundwater through the site.

Please see attached Section 1.2 Purpose and Need for additional details.

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USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
Discharges within waters of the U.S. will be for the purpose of replacing impacted soils removed as part of the remediation process as well as to re-establish flow path through the Upper PBA and establish grades which will facilitate re-establishment of normal flow through the PBA.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

<table>
<thead>
<tr>
<th>Type</th>
<th>Amount in Cubic Yards</th>
<th>Type</th>
<th>Amount in Cubic Yards</th>
</tr>
</thead>
</table>

See attached section 1.5.7 for details

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 5.06

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)
For all aspects of this remediation process the USACE Best Management Practices (BMP) and General Conditions for projects located in Waters of the U.S. will be followed. Appropriate sediment and erosion control devices will be implemented as necessary during construction of the project. Controls such as silt fence or straw bales, sediment traps, and temporary seeding will be implemented on all areas disturbed during construction in accordance with requirements of a Nationwide Permit. A Mitigation monitoring plan has been developed and is included as an attachment to this PCN (see Appendix H)

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25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list):

a. Address- Please see attached Appendix B: Adjacent Property Owner Information
City - State - Zip -

b. Address-
City - State - Zip -

c. Address-
City - State - Zip -

d. Address-
City - State - Zip -

e. Address-
City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>TYPE APPROVAL*</th>
<th>IDENTIFICATION NUMBER</th>
<th>DATE APPLIED</th>
<th>DATE APPROVED</th>
<th>DATE DENIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>USFWS</td>
<td>Consultation</td>
<td>21450-2011-I-0304</td>
<td>September 14, 2011</td>
<td>October 14, 2011</td>
<td></td>
</tr>
</tbody>
</table>

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.