ATTACHMENT

USACE SOUTH PACIFIC DIVISION – ALBUQUERQUE DISTRICT
NATIONWIDE PRE-CONSTRUCTION NOTIFICATION FORM

Tijeras Interceptor Reinforcement Project

Bernalillo County, New Mexico

Prepared by:

Rocky Mountain Ecology, LLC
P.O. Box 45193
Rio Rancho, NM 87174

On Behalf of:

Smith Engineering Company
2201 San Pedro NE, Bldg 4, Suite 200
Albuquerque, NM 87110

June 2022

INTRODUCTION

This Attachment is a supplement to the U.S. Army Corps of Engineers, South Pacific Division, Albuquerque District (USACE), Nationwide Permit Pre-Construction Notification (PCN) Form for the Tijeras Interceptor Reinforcement Project, in Bernalillo County, New Mexico. This Attachment includes relevant information to certain Box fields on the PCN Form. References to this Attachment within the relevant Box fields have been indicated on the PCN Form.

BOX 19
Description OF Proposed Nationwide Permit Activity

The Albuquerque Bernalillo County Water Utility Authority (ABCWUA) proposes reinforcement measures between the Tijeras Arroyo and the ABCWUA-administered interceptor sewer line. Presently, the subject portion of the arroyo exists in an incised and unstable condition; with each measurable flow of stormwater down the arroyo, the bend in the arroyo headcuts and migrates closer to the sewer line. If left unmitigated, the arroyo would eventually undercut the line and its structural integrity would be significantly compromised.

ABCWUA has retained Smith Engineering Company (SEC) to complete the design of the reinforcement measures, which involves construction and installation of tangent concrete pile walls. Longevity means of construction, and functionality of the structure were all considered when selecting a suitable alternative. The design will utilize multiple individual cast-in-place reinforced concrete piles to create a retaining wall structure. Each individual pile is estimated to be 3 to 4-feet in diameter with a depth of 40 to 60-feet. The exact diameter and depth of each pile will be determined once the geotechnical investigation has been completed. The pile wall is 300-linear feet long, 66-ft of which is located at or below the ordinary high water mark (OHWM) of the arroyo (Appendix A). Approximately 0.02-ac at or below the OHWM will be permanently filled with an estimated 435 cubic yards of soil. An additional area of 0.12-ac will be temporarily filled with approximately 2,063 cubic yards of soil. The soil will be backfilled and compacted to the existing grade and tapered to a slope of 2:1 past the outside wall of the proposed pile for means of construction. Kirtland Airforce Base will determine a suitable onsite location to import permanent and temporary fill. The temporary fill will facilitate a stable drilling operation, pile core, and caisson installation (if deemed necessary). Once construction has been completed, temporary fill and excess bore cuttings will be removed and be hauled away to an onsite location for disposal. (Refer to Appendix B of this PCN for "*Design Plans for Tijeras Interceptor Reinforcement Project*.")

A 25-foot wide equipment access point 200 feet upstream of the project will be used to haul the temporary and permanent fill material. Approximately 0.05-ac will be disturbed by equipment entering and exiting the Tijeras arroyo for this purpose.

The total disturbance area of the construction zone is anticipated to exceed 1 acre but not more than 2 acres. Standard construction equipment may include, but is not limited to backhoes, loaders,

bulldozers, skidsteers, and compaction machines.

No significant or meaningful direct or indirect environmental impacts would result from the proposed project. During construction, some wildlife species that normally utilize the area may be temporarily displaced, however, those species would be expected to return once project activities concluded. Following construction, the subject portion of Tijeras Arroyo would exist in a much more stable condition, decreasing sediment transport during stormwater events. Overall, the project area does not represent a unique or outstanding resource type when compared to the general surrounding landscape. A Biological and Ordinary High Water Mark Delineation Report has been prepared for the project which detailed a no effect determination to federally listed species due to a lack of appropriate habitat for any listed species. Implementation would begin as soon as the compliance and permitting phase has concluded (Appendix A).

BOX 20 Description of Proposed Mitigation Measures

Natural erosion control will be implemented via planting willows downstream of the project area. This mitigation measure is discussed in further detail in Appendix C. In addition to the willows, avoidance and minimization measures to mitigate temporary and minor impacts specific to the Tijeras Interceptor Reinforcement Project include the following:

1.) Best management practices (BMPs) will be implemented to prevent adverse water quality impacts to the greatest extent possible, including timing construction activities to coincide with periods of no or low flow; minimizing the disturbance areas and the length of time disturbed soils are exposed; and stockpiling fill materials above the OHWM.
2.) Temporary and permanent soil erosion control measures will be implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) permit process of the CWA, and a Storm Water Pollution Prevention Plan (SWPPP) will be prepared. The NPDES permit and SWPPP plan will be implemented for the project's disturbed area, which will also include the surrounding area for excavated material obtained for permanent and temporary fill. Temporary measures to control erosion and sediment could include protecting stockpiled materials to prevent erosion of the materials into Waters of the U.S. by installing silt screens, straw bales, or other erosion control measures, and stabilizing disturbed areas by re-seeding them with a mixture of locally sourced native plants.
3.) Reinforcement measures between the Tijeras Arroyo and the ABCWUA-administered interceptor sewer line will be implemented by the installation of tangent concrete pile wall structures, as described above.
4.) Standard material controls to protect groundwater will be implemented as part the construction contracting requirements, including storing and dispensing fuels, lubricants, hydraulic fluids, and other petrochemicals outside the 100-year floodplain; inspecting equipment daily for petrochemical leaks; preparing an oil spill response plan; and having an oil spill response kit easily accessible and one-site at all times.

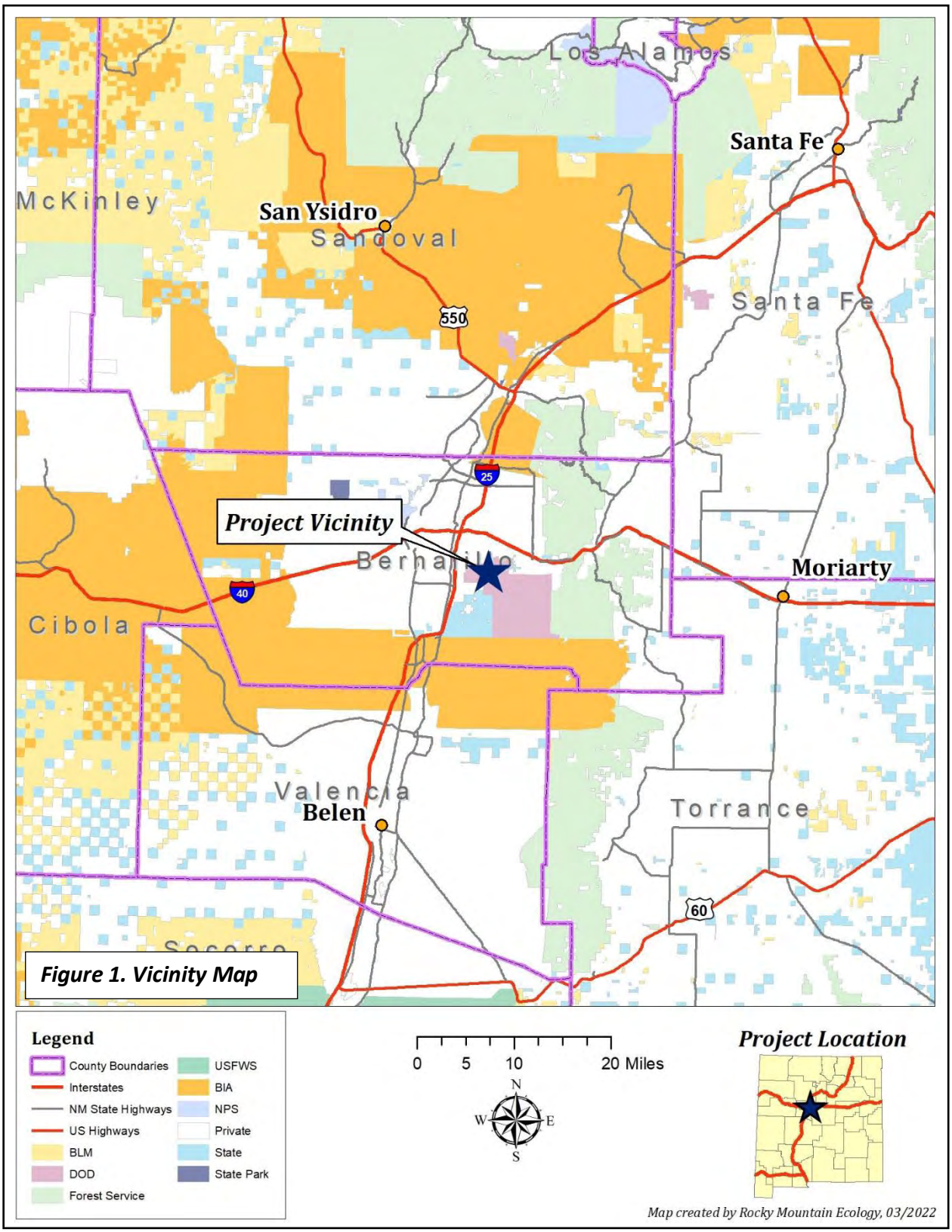

Figure 1. Vicinity Map

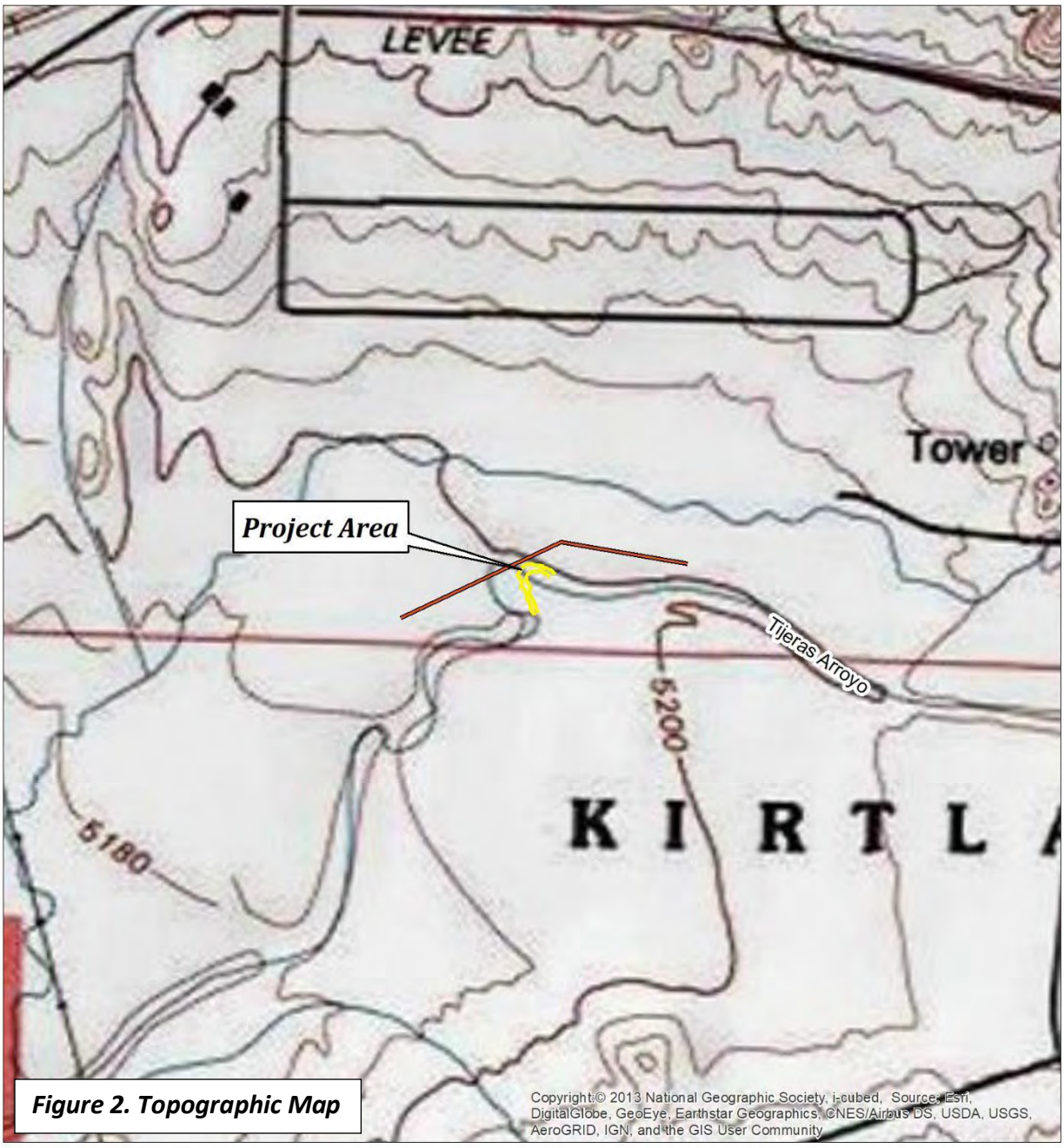

Figure 2. Topographic Map

Legend

Sewer Line

Delineated OHWM

0 0.05 0.1 0.2 Miles

N W E S

Project Location

Map created by Rocky Mountain Ecology, 03/2022

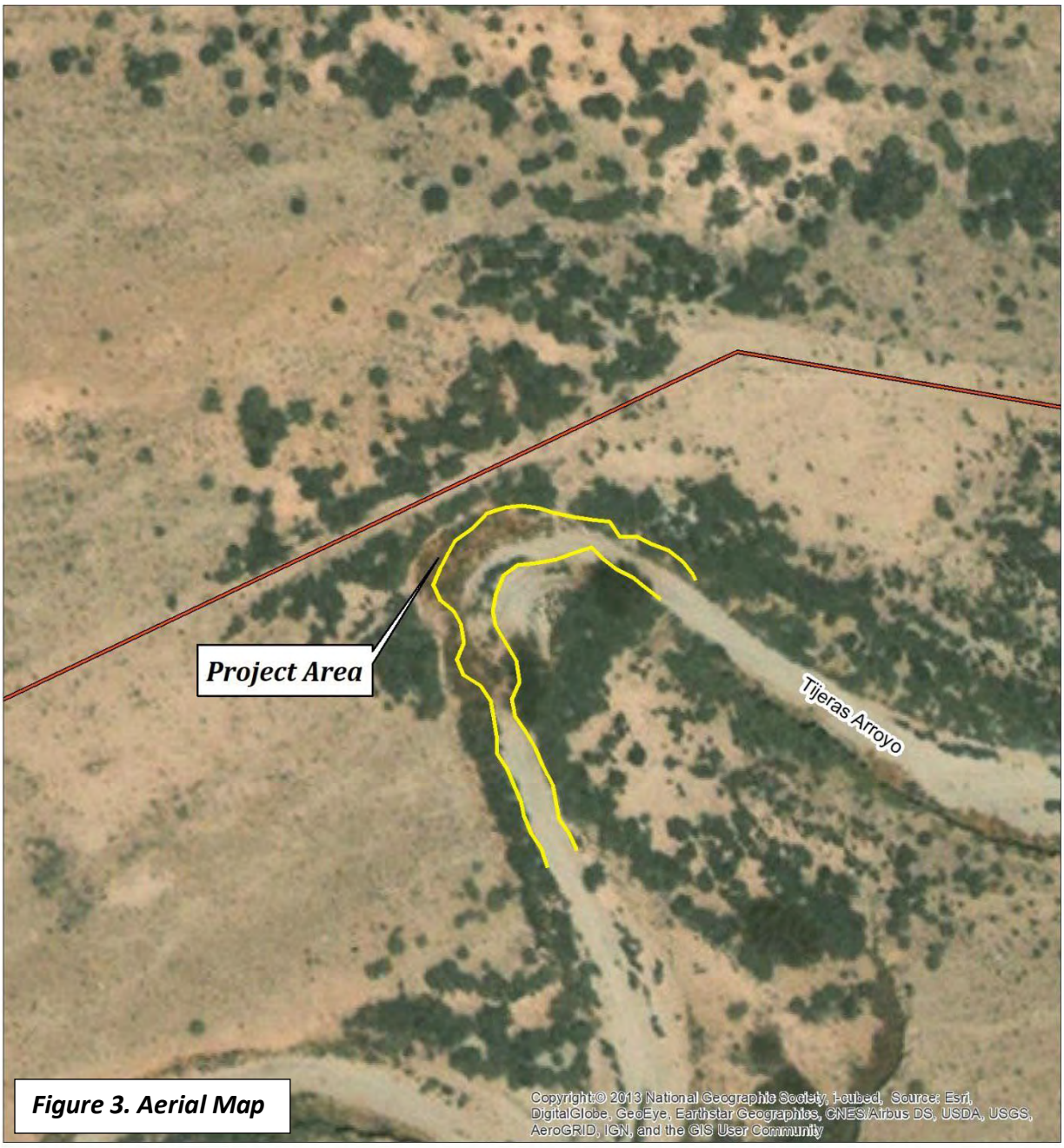

Figure 3. Aerial Map

Legend

Sewer Line

Delineated OHWM

0 0.0075 0.015 0.03 Miles

N W E S

Project Location

Map created by Rocky Mountain Ecology, 03/2022

Photos.

Photo 1. Facing northeast toward subject bend in arroyo.

Photo 1-A. Photo 1 taken on August 16, 2022.

Photo 2. Facing south from upper terrace of incised arroyo. At-risk sewer line located just behind the view of picture.

Photo 3. Facing north toward project area from upper terrace, downstream of project area.

Photo 4. Facing north toward incised bend, from bottom of Tijeras Arroyo.

Photo 5. Facing north to incised portion of arroyo that will be re-worked.

Photo 6. Facing west and downstream toward incised portion of arroyo that will be reinforced.

Appendix A. Biological and Ordinary High Water Mark Delineation Report

Appendix B. Design Plans for Tijeras Interceptor Reinforcement Project

Appendix C. Willow Planting Mitigation Plan for the Tijeras Interceptor Reinforcement Project

BIOLOGICAL AND ORDINARY HIGH WATER MARK REPORT
FOR THE
TIJERAS ARROYO BANK STABILIZATION PROJECT

PREPARED FOR:
SMITH ENGINEERING COMPANY
2201 SAN PEDRO NE, BLDG 4, SUITE 200
ALBUQUERQUE, NM 87110

PREPARED BY:
ROCKY MOUNTAIN ECOLOGY, LLC
P.O. BOX 45193
RIO RANCHO, NM 87174

BIOLOGICAL AND ORDINARY HIGH WATER MARK REPORT

FOR THE

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P.O. BOX 45193
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INVESTIGATOR:
CLAYTON P. BOWERS
DIRECTOR, ROCKY MOUNTAIN ECOLOGY, LLC

6/2/2022

Signature Date

Table of Contents

1.0 Introduction

1.1 Background

The Albuquerque Bernalillo County Water Utility Authority (ABCWUA) is proposing bank stabilization measures to a portion of Tijeras Arroyo that is currently threatening the structural integrity of an existing ABCWUA sewer line in Albuquerque, NM. The proposed project would include constructing tangent concrete pile walls within and along the bankline of the arroyo to protect the sewer line from future high-volume flows within the arroyo.

The project is located in central Bernalillo County, New Mexico, in Section 1 of Township 9 North, Range 3 East (Appendix A, Figures 1 - 3). Land ownership within the project area is held by the Department of Defense (DoD), as part of the Kirtland Air Force Base (KAFB). Access to the project area is gained through various KAFB controlled roadways and requires coordination and permitting with KAFB.

This documentation has been completed for Smith Engineering Company (SEC) on behalf of ABCWUA. Rocky Mountain Ecology, LLC (RME) has been retained to conduct the Biological Assessment (BA) for the project area to meet the requirements specified in Section 7 of the Endangered Species Act (ESA) 19 U.S.C. 1536 (c), 50 CFR 402.12 (F) and 402.14 (c). Project activities would begin when the design, compliance and permitting process is complete, estimated to be February of 2023. Construction is anticipated to last approximately nine to twelve months.

1.2 Purpose

The proposed bank stabilization would protect existing infrastructure from damage associated with the Tijeras Arroyo, which is currently incising and highly unstable.

This BA has been prepared to analyze impacts and determine effects of the proposed project upon federally threatened, endangered, candidate and species of concern. Specifically, this BA will provide ABCWUA with site-specific knowledge regarding protected or sensitive species, and assist them in determining if consultation with the U.S. Fish and Wildlife Service (USFWS) is prudent. This document will also aid in determining if the Proposed Action would lead toward the federal listing of any sensitive species listed under the Endangered Species Act of 1973 as amended. This document adheres to requirements specified in Section 7 of the Endangered Species Act (ESA) (19 U.S.C. 1536 (c), 50 CFR 402.12 (F) and 402.14 (c)).

2.0 Methods & Consultation

The USFWS list of threatened, endangered, candidate and species of concern was evaluated prior to fieldwork (Appendix B.) That species list has been evaluated in Section 5.0 below. Consultation with the USFWS will be undertaken if deemed necessary by ABCWUA, based on findings of this BA. In addition, the National Wetland Inventory (NWI) website was accessed to determine potential wetland presence within the project area (Appendix D).

A site visit of the project area was conducted by Clayton P. Bowers on 1 March 2022. Habitat suitability for federally threatened, endangered, candidate, or species of concern with potential to occur was determined at the project area. In addition, arroyo attributes, such as low-flow channel, floodplain, terrace and Ordinary High Water Mark (OHWM) data was collected using a sub-meter GPS device. The presence of noxious weeds was also ascertained during the site visit. Finally, the project area was surveyed for the potential presence of wetlands or wetland indicators (e.g., such as hydrophytic vegetation or wetland hydrology). Dominant vegetation communities and common plant and animal species noted within the project area are described in Section 3.0.

3.0 Description of Analysis Area

The project area is located within the Albuquerque Basin sub-region of the Arizona/ New Mexico Plateau Ecoregion (Griffith et al. 2006), and the Rio Grande-Albuquerque sub-basin of the Rio Grande watershed (USGS 2009). Tijeras Arroyo, which is central to the project area, conveys flows originating within Tijeras Canyon in the East Mountains, to the west with its confluence with the Rio Grande River, a Traditional Navigable Water (TNW). The project area is situated at approximately 5,206 feet (ft) above sea level.

The project area is dominated by species indicative of the Arroyo Riparian and Plains Mesa Sand Scrub vegetation types (Dick-Peddie 1993). Dominant species documented during the site visit include four-wing saltbush (*Atriplex canescens*), sand sage (*Artemesia filifolia*) and Russian thistle (*Salsola kali*). Additional species observed include kochia (*Bassia scoparia*), snakeweed (*Gutierrezia sorothrae*) sand dropseed (*Sporobolus cryptandrum*), sunflower (*Helianthus annuus*), rabbitbrush (*Ericameria nauseosa*), cocklebur (*Xanthium spp*), silverleaf nightshade (*Solanum elaeagnifolium*), plains bristlegrass (*Setaria leucopila*), silver bluestem (*Bothriochloa saccharoides*), weeping lovegrass (*Eragrostis curvula*) and blue grama (*Bouteloua gracilis*). One Class C noxious weed species, salt cedar (*Tamarix spp.)*, was also noted to occur within Tijeras Arroyo immediately adjacent to the project area.

Wildlife in the vicinity of the project area includes various small mammals, diverse avifauna, reptiles, amphibians, and big game species (Brown and Lowe 1980). Wildlife typical of the general area include coyotes (*Canis latrans*), desert cottontails (*Sylvilagus audubonii*), kangaroo rats (*Dipodomys* spp.), mule deer (*Odocoileus hemionus*), common ravens (*Corvus corax*), turkey vultures (*Cathartes aura*), swallows (*Hirundo* spp.), mourning doves (*Zenaida macroura*), western kingbirds (*Tyrannus verticalus*), red-tailed hawks (*Buteo jamaicensis*), bull snakes (*Pituophis catenifer sayi*), and whiptail lizards (*Cnemidophorus spp.*). Wildlife observed during the site visit include western meadowlarks (*Sturnella neglecta*) and jackrabbits (*Lepus californicus*).

4.0 Description of Proposed Project

The ABCWUA proposes bank stabilization measures within Tijeras Arroyo to protect an ABCWUA-administered sewer line. Presently, the subject portion of the arroyo exists in an incised and unstable condition; with each measurable flow of stormwater down the arroyo, the bend in the arroyo headcuts and migrates closer to the sewer line. If left unmitigated, the arroyo would eventually undercut the line and its structural integrity would be significantly compromised. ABCWUA has retained SEC to complete the design of bank stabilization measures, which involves construction and installation of tangent concrete pile walls, which are estimated to be 3 to 4-feet in diameter with a depth of 40 to 60-feet. The exact diameter and depth of each pile will be determined once the geotechnical investigation has been completed. The pile wall will be 300-linear feet in length, 66-ft of which is located at or below the OHWM of the arroyo. The total potential disturbance area would be less than one acre. Standard construction equipment may include, but is not limited to backhoes, loaders, bulldozers, skidsteers, and compaction machines. Implementation would begin as soon as the compliance and permitting phase has concluded.

The avian nesting and breeding season is approximately 15 March - 31 August. Work activities could occur during that timeframe. Suitable nesting strata occurs within and adjacent to the project area. At the discretion of the lead federal agency (USACE or KABF), a pre-construction nesting bird survey may be conducted by a qualified biologist to flag any active nests for avoidance.

5.0 Federal Threatened, Endangered or Candidate Species Evaluated

Federally listed threatened, endangered and candidate species (Table 1) from the project area were obtained from the USFWS Information, Planning, and Conservation (IPaC) System (Appendix B). The project area does not contain critical habitat for any federally

listed species. Potential effects of the Proposed Action on threatened, endangered and candidate species are analyzed in this section.

Table 1: Federally listed Endangered, Threatened and Candidate species for the project area, as of March 7, 2022.

Species	Legal Status	Habitat Present	Habitat Not Present	Habitat Present But not Affected	Does not Occur in Area	Comments
Birds						
Mexican spotted owl *(Strix occidentalis lucida)*	Threatened		X			Habitat is absent within the project area. The project area lacks an old-growth component of mixed conifer stands exhibiting a diversity of seral stages dominated by large trees > 18 inches diameter at breast height (DBH) (BISON-M 2022). There would be no effect to the species. No further analysis required.
Southwestern willow flycatcher *(Empidonax traillii extimus)*	Endangered		X			The species requires riparian habitat with dense vegetative communities often comprised of willows, tamarisk, arrowweed, or baccharis and typically found in association with a cottonwood overstory (BISON-M, 2022). Riparian habitat requirement is not present within project area. There would be no effect to the species. No further analysis required.
Yellow-billed cuckoo *(Coccyzus americanus)*	Threatened		X			The species is known to prefer riparian habitat characterized by dense wooded cover in proximity to water (BISON-M 2022). No riparian habitats occur within or near the project area. There would be no effect to

Species	Legal Status	Habitat Present	Habitat Not Present	Habitat Present But not Affected	Does not Occur in Area	Comments
						the species. No further analysis required.
Fishes						
Rio Grande silvery minnow (*Hybognathus amarus*)	Endangered		X			Perennial aquatic habitat types are not present within the project area. There would be no effect to the species. No further analysis required.
Mammals						
New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)	Endangered		X			The species requires riparian habitats characterized by dense herbaceous vegetation along streambanks or persistent herbaceous emergent wetlands (BISON-M, 2022). Riparian habitat is not present within the project area. There would be no effect to the species. No further analysis required.
Insects						
Monarch butterfly (*Danaus plexippus*)	Candidate		X			Strongly associated with milkweed (*Asclepias spp*), an essential feature of quality monarch habitat. Milkweed is primarily found along riparian areas, which are absent in the project area. No further analysis required.

5.1 Potential Impacts to Endangered, Threatened and Candidate species

No federally listed threatened, endangered or candidate species occur or have habitat which occurs within the project area. Project implementation would result in no impacts to federally listed species or their habitat.

6.0 Migratory Birds

Due to the Executive Order 13186, signed on January 10, 2001 by President Clinton, emphasis has been placed on conservation of migratory birds, as defined by the Migratory Bird Treaty Act of 1918. The avian nesting and breeding season is approximately 15 March - 31 August. Work activities could occur during that timeframe. Suitable nesting habitat for migratory birds does exist throughout the project area. At the discretion of the lead federal agency (USACE), a pre-construction nesting bird survey may be conducted by a qualified biologist to flag any active nests for avoidance.

7.0 Noxious Weeds

Two mature salt cedar, a class C noxious weed as defined by the State of New Mexico (NMDA 2020), were located in the project area during the field survey. Their presence was noted not to be negatively impacting the overall vegetative community and in fact, serve as the only significant nesting strata in the general area for migratory birds. Implementation of the project is not likely to further propagate the species in the area.

8.0 Wetlands and Waters of the U.S.

The Clean Water Act (CWA) of 1972 regulates activities that have the potential to impact Waters of the U.S. (WOUS). Section 404 of the CWA regulates discharge of dredged and fill materials within the OHWM of WOUS, and is administered by the U.S. Army Corps of Engineers (USACE). Section 401 of the CWA regulates water quality and, for the purposes of the project, is administered by the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB).

As previously stated, the project area is situated along a portion of the Tijeras Arroyo, which originates in Tijeras Canyon within the East Mountains, and flows approximately 7.3 river miles southwest of the project area to the Rio Grande River - a USACE designated WOUS. Therefore, the project would be regulated under the provisions of Section 404 of the Clean Water Act (CWA) and would require coverage under the USACE Regional General Permit 16-01 – Utility Line Construction, Maintenance, Repair or Removal. Moreover, because Section 404 pre-construction notifications require detailed design information, a notification package will be submitted by the project proponent to the USACE to initiate the 404 permit process during final design. The permit process will be completed prior to project construction. Because Section 404 of the CWA applies to this project, a CWA Section 401 Water Quality Certification will also be required. This certification is issued through the New Mexico Environment Department (NMED), Storm Water Quality Bureau. Coordination with the NMED will also be initiated and completed prior to construction.

The Stormwater Pollution Prevention Plan (SWPPP) that is prepared for this project would indicate measures to minimize erosion such as construction of berms or installation of erosion control structures during the construction process. Less than one acre of land could be disturbed from the proposed project.

Prior to the biological survey, the National Wetland Inventory (NWI) website was accessed to determine potential wetland presence within the project area, which indicated that Tijeras Arroyo is a Riverine Wetland. During the biological survey, the project area was evaluated for the presence of wetland indicators (e.g., hydrophytic vegetation, hydric soils and wetland hydrology). No wetlands were located, as Tijeras Arroyo is ephemeral in nature and does not harbor water long enough to propagate hydrophytic vegetation, hydric soils, or hydrology that is indicative of wetlands.

An OHWM delineation of Tijeras Arroyo within the project area was conducted on 1 March 2022, using the *Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region* (USACE 2008). The project area has been identified as an impact area for the completion of the bank stabilization efforts.

Within the project area, Tijeras Arroyo is characterized as a narrow, incised and deep channel, approximately 20 ft wide. The low-flow channel comprises approximately 15 feet of the total channel width, and consists of medium to large sand granules with no vegetation. The active floodplain is primarily found only on the south side of the channel, as heavy incision on the north side (in the direction of the sewer line) has eliminated the floodplain and instead, the low-flow channel abruptly transitions immediately to the upper terrace, approximately 20 ft above the channel bed. The active floodplain harbors some small boulders, but is also very sandy and harbors limited vegetation including cocklebur, sunflower, salt cedar and kochia. Vegetation becomes more common on the upper terrace, with four-wing saltbush, snakeweed and sand sage comprising the dominant species.

The natural OHWM was delineated in the project area; fill and tangent concrete pile walls are proposed to be installed at and below the OHWM to push the incised bank line away from the existing sewer line and protect it from further erosion. Implementation of the Proposed Action would result in up to 500 square ft of impacts at or below the OHWM. These impacts would be considered permanent due to installation of permanent structures (pile walls). In addition, up to 4,000 square ft of temporary impacts at or below the OHWM would be incurred via placement of fill during project activities. This fill would be removed at the conclusion of construction.

9.0 Determinations and Conclusions

There will be no effect for any federally listed species, or for species proposed for such listing, as a result of the implementation of the Tijeras Arroyo Bank Stabilization Project.

Up to 4,500 square ft of impacts to Tijeras Arroyo will occur as a result of the Tijeras Arroyo Bank Stabilization Project. Up to 500 square ft of those impacts would be permanent while up to 4,000 square ft would be temporary. A USACE Regional General Permit Pre-Construction Notification Form has been prepared and submitted to the USACE for the project as part of this Biological and OHWM Report.

10.0 Personnel

Clayton P. Bowers

- Director – Rocky Mountain Ecology, LLC
- 13 years of experience in natural resource surveys, environmental compliance and project management

Lucas Vecchio

- Watershed/Geospatial Specialist – Rocky Mountain Ecology, LLC
- 8 years of experience in natural resource surveys, environmental compliance and project management

11.0 Consultation/ Coordination

This section includes individuals from the interdisciplinary team that were consulted during the development of this document.

Table 2. Summary of parties contacted during preparation of this document.

Organization
Albuquerque Bernalillo County Water Utility Authority
Smith Engineering Company
U.S. Army Corps of Engineers
U.S. Fish & Wildlife Service
DoD – Kirtland Air Force Base

12.0 References

Brown, D.E. and Lowe, C. H. 1980. Biotic Communities of the Southwest. General Technical Report, Rocky Mountain Forest and Range Experiment Station, USDA Forest Service 1980 No. RM-78 pp. 1 p.

[BISON-M] Biota Information System of New Mexico. 2022. Jemez Mountain Salamander.. Available at: http://www.bison-m.org/booklet.aspx?id=020060. Mexican Spotted Owl. Available at: http://www.bison-m.org/booklet.aspx?id=041375. Southwestern Willow Flycatcher. Available at: http://www.bison-m.org/booklet.aspx?id=040521. Yellow-billed Cuckoo. Available at: http://www.bison-m.org/booklet.aspx?id=040250. New Mexico Meadow Jumping Mouse. Available at: http://www.bison-m.org/booklet.aspx?id=04025. Accessed 8 March 2022.

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Griffith, G.E., Omernik, J.M., McGraw, M.M., Jacobi, G.Z., Canavan, C.M., Schrader, T.S., Mercer, D., Hill, R., and Moran, B.C., 2006. Ecoregions of New Mexico (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,400,000).

[NMDA] New Mexico Department of Agriculture. 2020. State Noxious Weed Information. (http://www.nmda.nmsu.edu/apr/noxious-weed-information/).

[USGS] U.S.D.I. 2009. U.S.G.S. National Hydrography Dataset. http://nhd.usgs.gov/index.html

[USFWS] U.S. Fish and Wildlife Service. 2022. IPAC – Information, Planning, and Conservation System. Available at: http://ecos.fws.gov/ipac/gettingStarted/map. Project Code: 2022-0016666. Accessed 7 March 2022.

13.0 Appendices

Appendix A. Maps

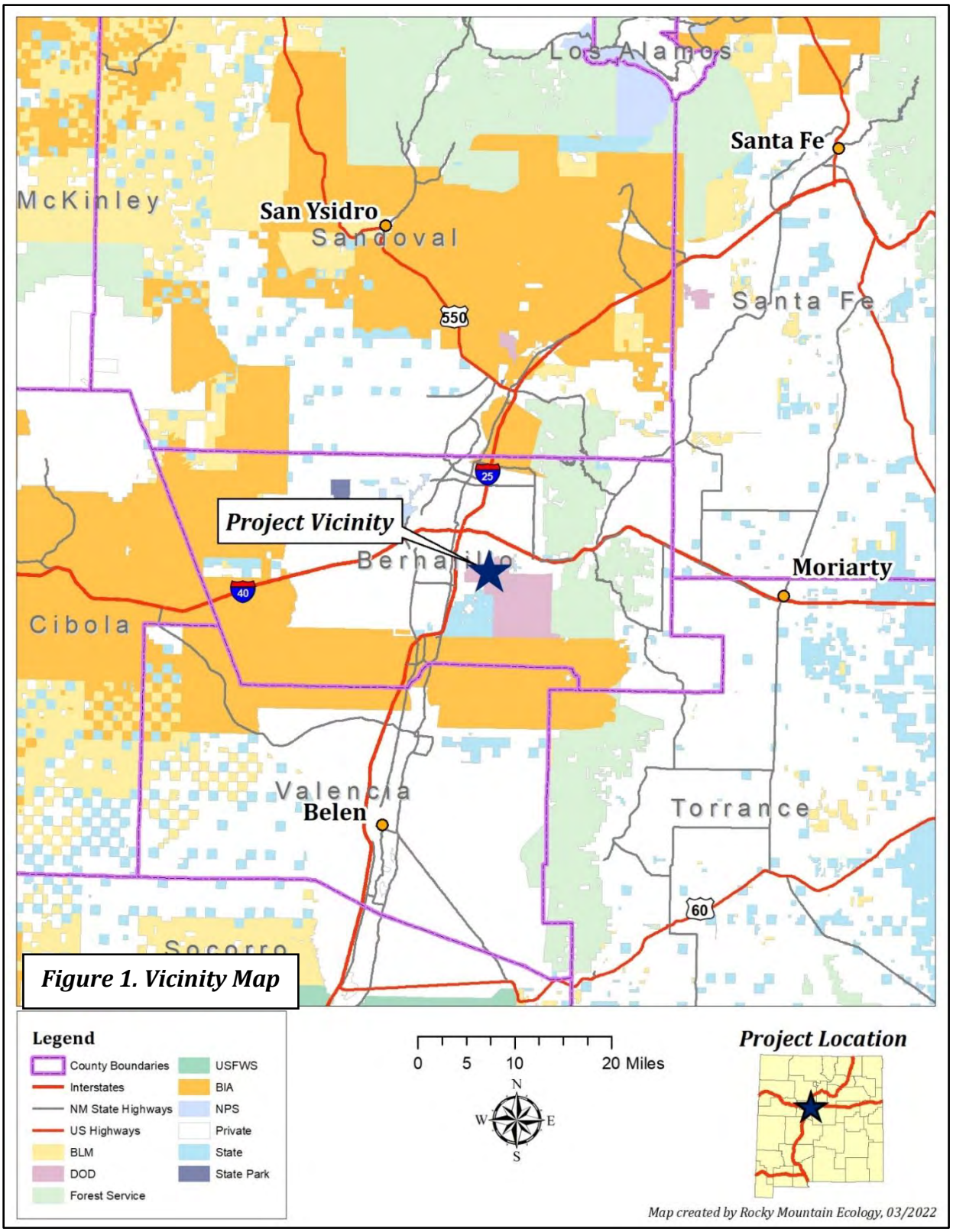


Figure 1. Vicinity Map

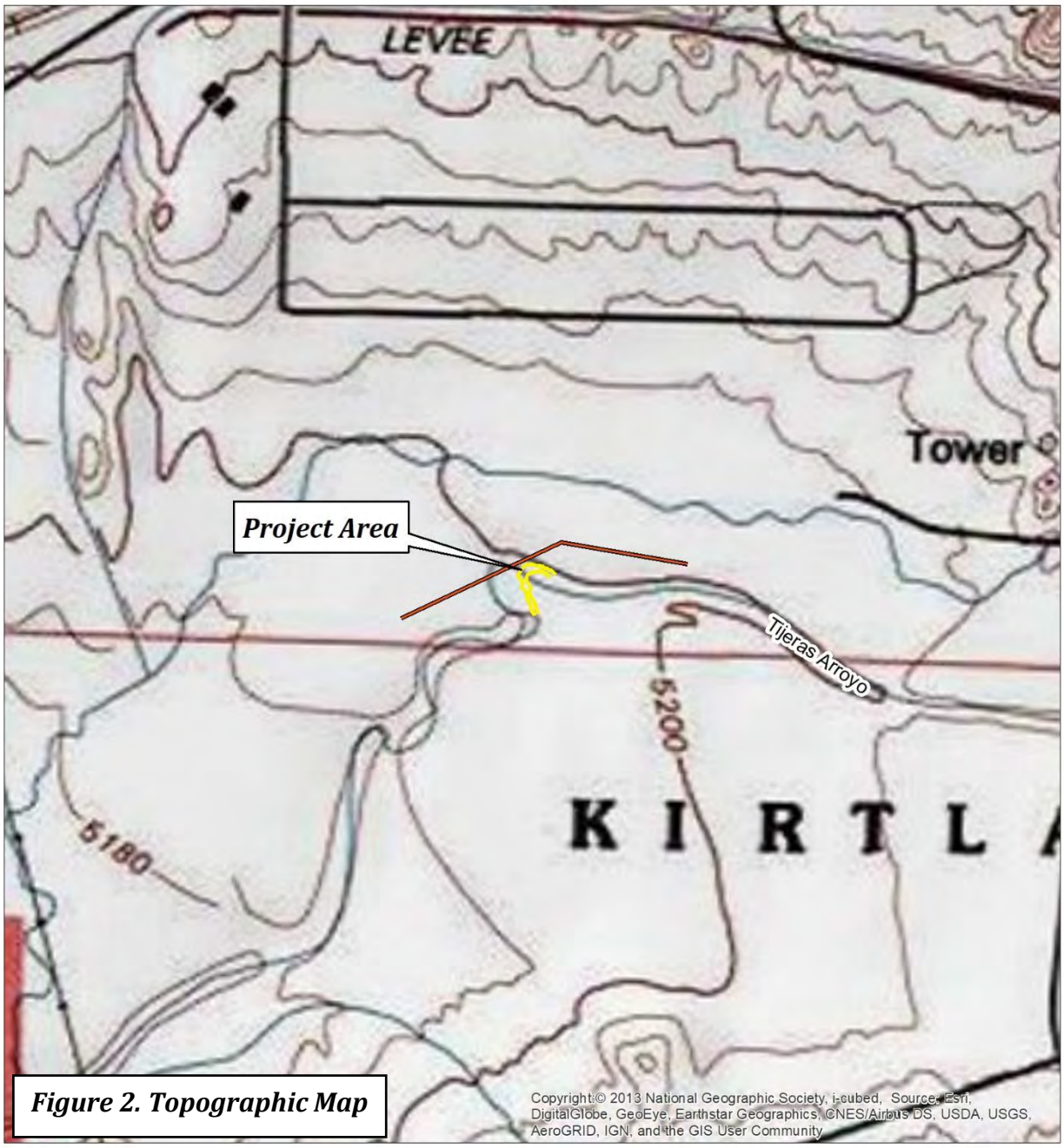


Figure 2. Topographic Map

Legend
- Sewer Line
- Delineated OHWM

0 0.05 0.1 0.2 Miles

N W E S

Project Location

Map created by Rocky Mountain Ecology, 03/2022

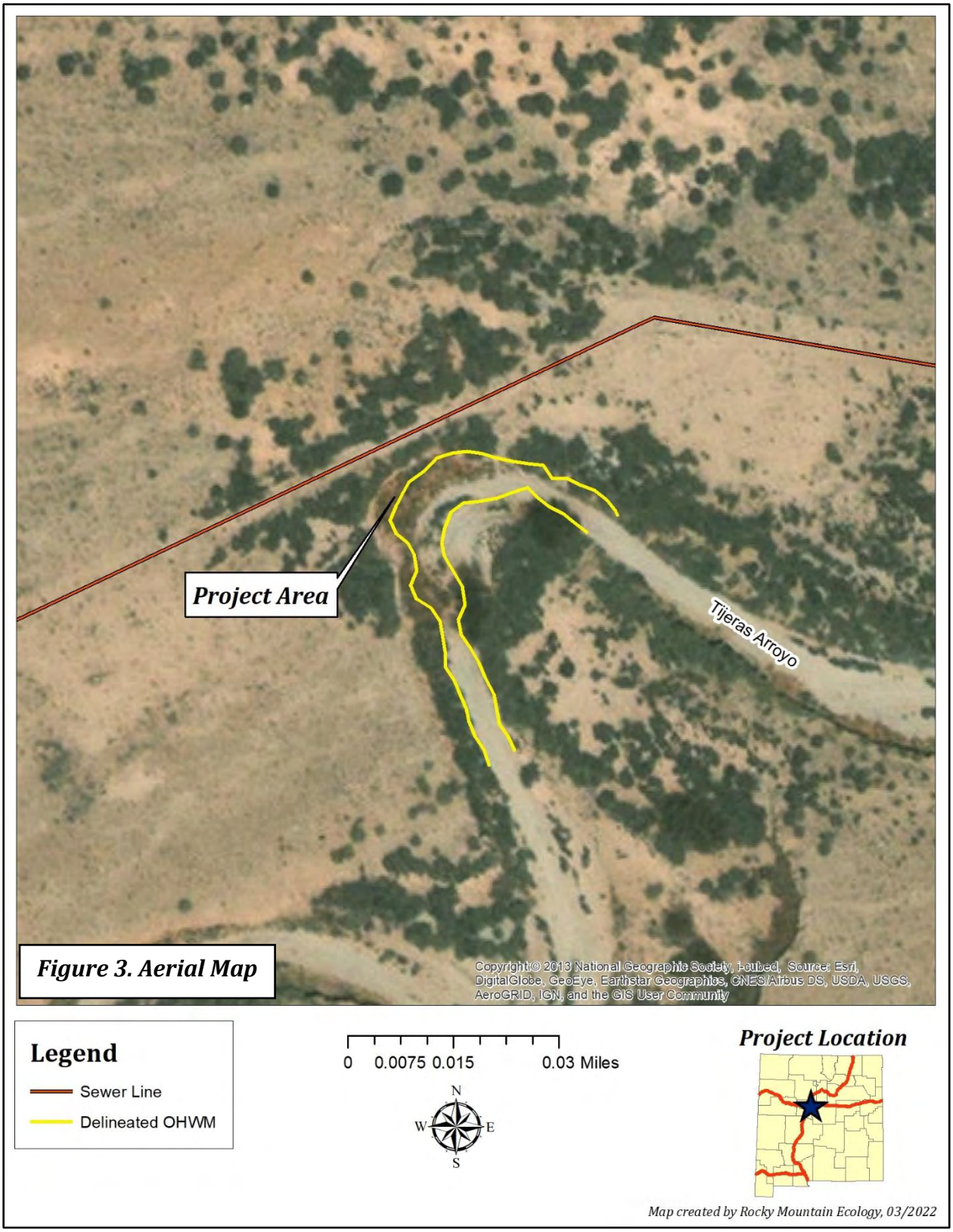


Figure 3. Aerial Map

Map created by Rocky Mountain Ecology, 03/2022

Appendix C. Photos

Photo 1. Facing northeast toward subject bend in arroyo.

Photo 2. Facing south from upper terrace of incised arroyo. At-risk sewer line located just behind the view of picture.

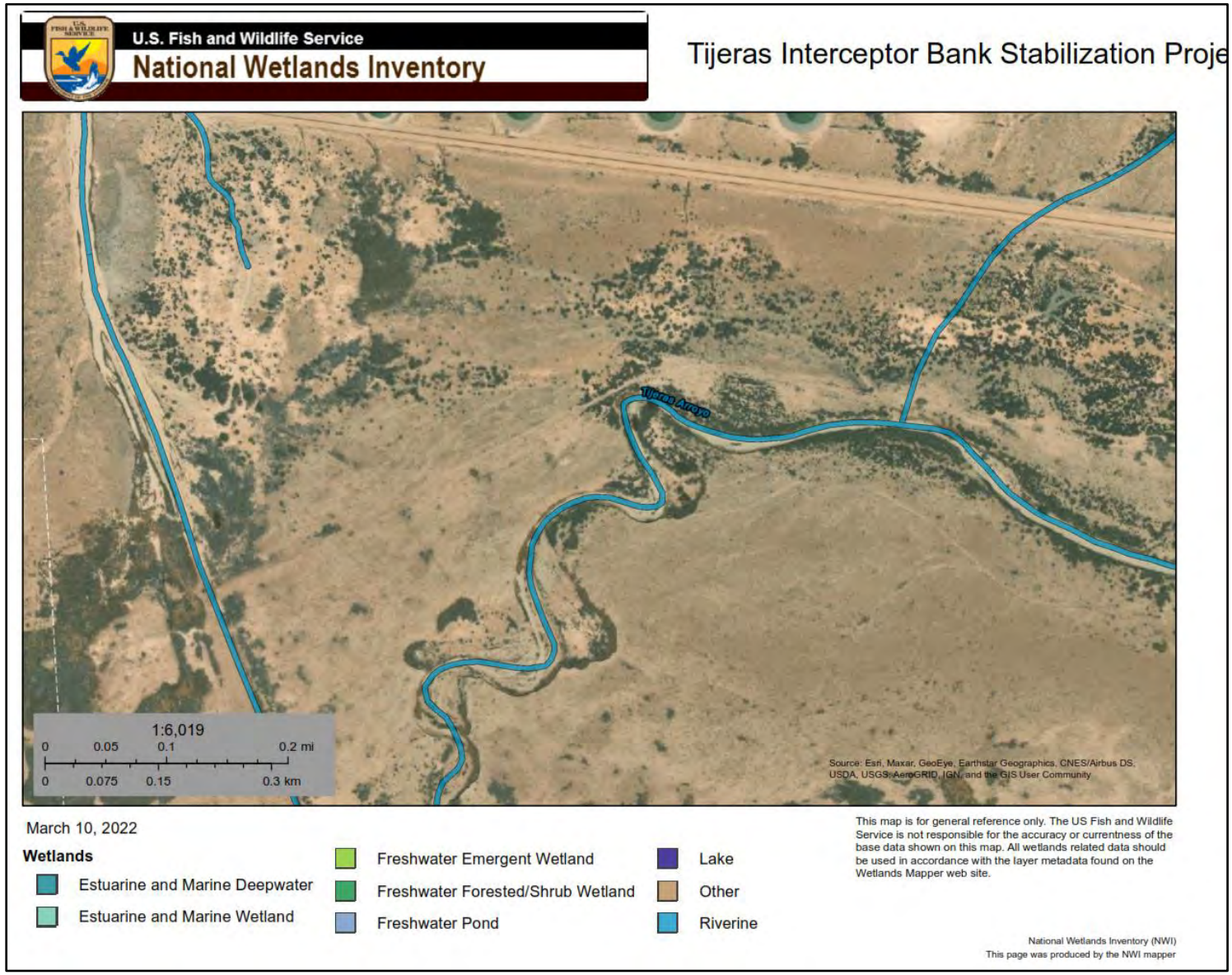
Photo 3. Facing north toward project area from upper terrace, downstream of project area.

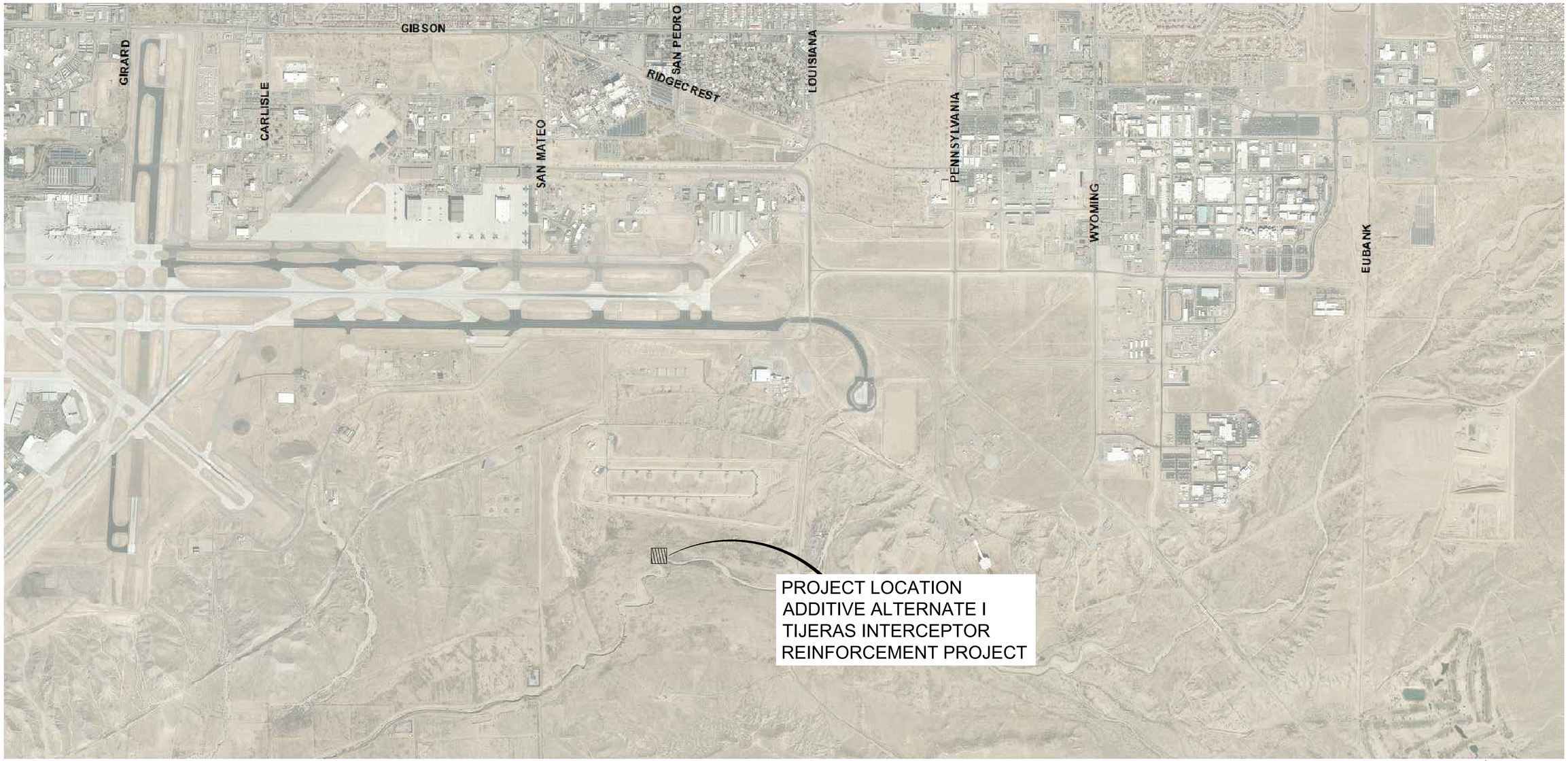
Photo 4. Facing north toward incised bend, from bottom of Tijeras Arroyo.

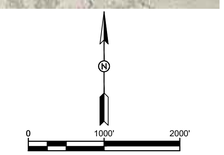
Photo 5. Facing north to incised portion of arroyo that will be re-worked.

Photo 6. Facing west and downstream toward incised portion of arroyo that will be re-worked.

Appendix D. USFWS NWI Figure







NO.	DATE	REVISION NO. & DESCRIPTION	BY
1	08–2022	REVISION 1	SEC
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	–	–	–
	–	–	–

SCALE: –

ATTENTION
0 1/2" 1"
GRAPHIC SCALE
THIS BAR MEASURES 1" AT FULL SCALE (22x34)

DESIGN TRACKING

DESIGNED BY:	KB	DATE:	05–2022
DRAWN BY:	JF	DATE:	05–2022
CHECKED BY:	JL	DATE:	05/2022
CROSS CHK'D BY:	–	DATE:	–
APPROVED BY:	–	DATE:	–

MAPS/RECORDS INFO.

SUBMITTED BY:

Smith Engineering Company
Solutions for Today... Vision for Tomorrow
2201 San Pedro Dr. NE | Building 4, Suite 200 | Albuquerque, NM 87110 | 505-884-0700 | smithengineering.pro
–

AS BUILT INFORMATION

CONTRACTOR:	–	
WORK STAKED BY:	–	DATE: –
INSPECTOR'S ACCEPTANCE BY: – INSPECTOR'S NAME: –		DATE: –
FIELD VERIFICATION BY:	–	DATE: –
DRAWINGS CORRECTED BY:	–	DATE: –

ENGINEER'S SEAL

ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

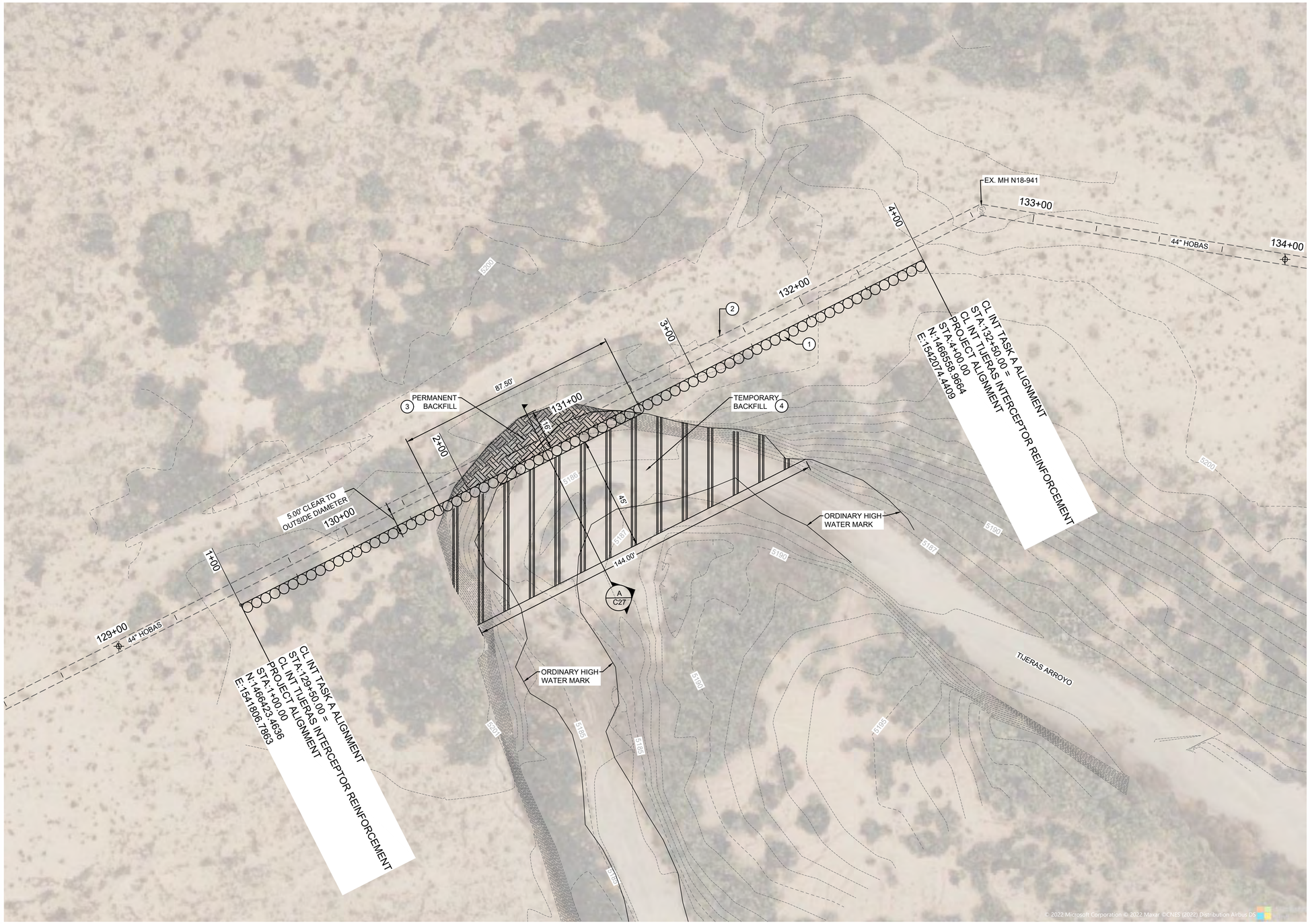
TITLE: KIRTLAND INTERCEPTOR REHAB CONSTRUCTION

ADDITIVE ALTERNATE I
TIJERAS INTERCEPTOR REINFORCEMENT PROJECT VICINITY MAP

WATER AUTHORITY CONSTRUCTION PROJECT NO.	2735.00	ZONE MAP NO.	SHEET C25

BID SET

File Path: Q:\SEC---PROJECTS\120101-22\CADD\PLANSET\32 TIJERAS INTERCEPTOR REINFORCEMENT PROJECT VICINITY MAP.dwg LT: 32 TIJERAS INTERCEPTOR REINFORCEMENT PROJECT VICINITY MAP Date: April 4, 2022

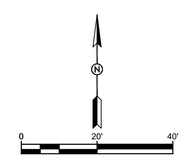


BUILD NOTES

1. FURNISH AND INSTALL TANGENT PILE WALL PER DETAIL ON SHEET C27 AND SUPPLEMENTAL TECHNICAL SPECIFICATION 31 63 23. (4 FT DIAMETER PILES SHOWN AS EXAMPLE)
2. EXISTING 44-INCH SANITARY SEWER INTERCEPTOR, PROTECT IN PLACE.
3. 435 CY PERMANENT BACKFILL TO BE PLACED BEHIND PILE WALL TO MATCH EXISTING GROUND. CONTRACTOR TO CONFIRM FILL MATERIAL WITH ENGINEER PRIOR TO PLACEMENT. FILL CONSTRUCTION INCLUDES EXCAVATION PLACEMENT, COMPACTION AND ALL RELATED WORK. INCIDENTAL TO TANGENT PILE WALL.
4. TEMPORARY BACKFILL AREA PROVIDED FOR CONSTRUCTION AS NEEDED. CONTRACTOR TO CONTAIN CONSTRUCTION IN AREA SHOWN. ONCE CONSTRUCTION HAS BEEN COMPLETED, TEMPORARY BACKFILL IS TO BE REMOVED FROM ARROYO, SEE SHEET NOTE 2 FOR DISPOSAL. INCIDENTAL TO TANGENT PILE WALL.
5. PRE-CONSTRUCTION SURVEY, EARTHWORK SURVEY, CONSTRUCTION STAKING, AND POST CONSTRUCTION SURVEY SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL TECHNICAL SPECIFICATION 01 71 23 FIELD ENGINEERING.

SHEET NOTES

1. CONTRACTOR TO REMAIN WITHIN PROJECT RIGHT-OF-WAY AND CONSTRUCTION EASEMENT.
2. CONTRACTOR SHALL ASSUME FILL MATERIAL CAN BE OBTAINED FROM SURROUNDING AREA. CONTRACTOR SHALL ASSUME THAT EXCESS EXCAVATED MATERIAL OR MATERIAL ABOVE THE ORDINARY HIGH WATER MARK CAN BE DISPOSED OF AT SURROUNDING AREA.
3. IMPORT OF FILL MATERIAL FROM OFFSITE PER ALLOWANCE. DISPOSAL OF EXCESS EXCAVATED MATERIAL TO OFFSITE PER ALLOWANCE.



NO.	DATE	REVISION NO. & DESCRIPTION	BY
1	08–2022	REVISION 1	SEC
	–	–	–
	–	–	–
	–	–	–
	–	–	–
	–	–	–
	–	–	–

SCALE: –

ATTENTION
0 1/2" 1"
GRAPHIC SCALE
THIS BAR MEASURES 1" AT FULL SCALE (22x34)

DESIGN TRACKING

DESIGNED BY:	KB	DATE:	05–2022
DRAWN BY:	JF	DATE:	05–2022
CHECKED BY:	JL	DATE:	05–2022
CROSS CHK'D BY:	–	DATE:	–
APPROVED BY:	–	DATE:	–

MAPS/RECORDS INFO.

SUBMITTED BY:

Smith Engineering Company
Solutions for Today... Vision for Tomorrow
2201 San Pedro Dr. NE | Building 4, Suite 200 | Albuquerque, NM 87110 | 505-884-0700 | smithengineering.pro

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AS BUILT INFORMATION

CONTRACTOR:	–		
WORK STAKED BY:	–	DATE:	–
INSPECTOR'S ACCEPTANCE BY:	–	DATE:	–
INSPECTOR'S NAME:	–		
FIELD VERIFICATION BY:	–	DATE:	–
DRAWINGS CORRECTED BY:	–	DATE:	–

ENGINEER'S SEAL

ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

TITLE: KIRTLAND INTERCEPTOR REHAB CONSTRUCTION

ADDITIVE ALTERNATE I
TIJERAS INTERCEPTOR REINFORCEMENT PROJECT SITE PLAN

WATER AUTHORITY CONSTRUCTION PROJECT NO.	2735.00	ZONE MAP NO.	SHEET C26

BID SET

SEQ. 33 OF 34

File Path: Q:\SEC---PROJECTS\120101-22\CADD\PLANSET\33 TIJERAS ARROYO BANK STABILIZATION SITE PLAN.dwg LT: 33 TIJERAS INTERCEPTOR REINFORCEMENT PROJECT SITE PLAN Date: April 4, 2022

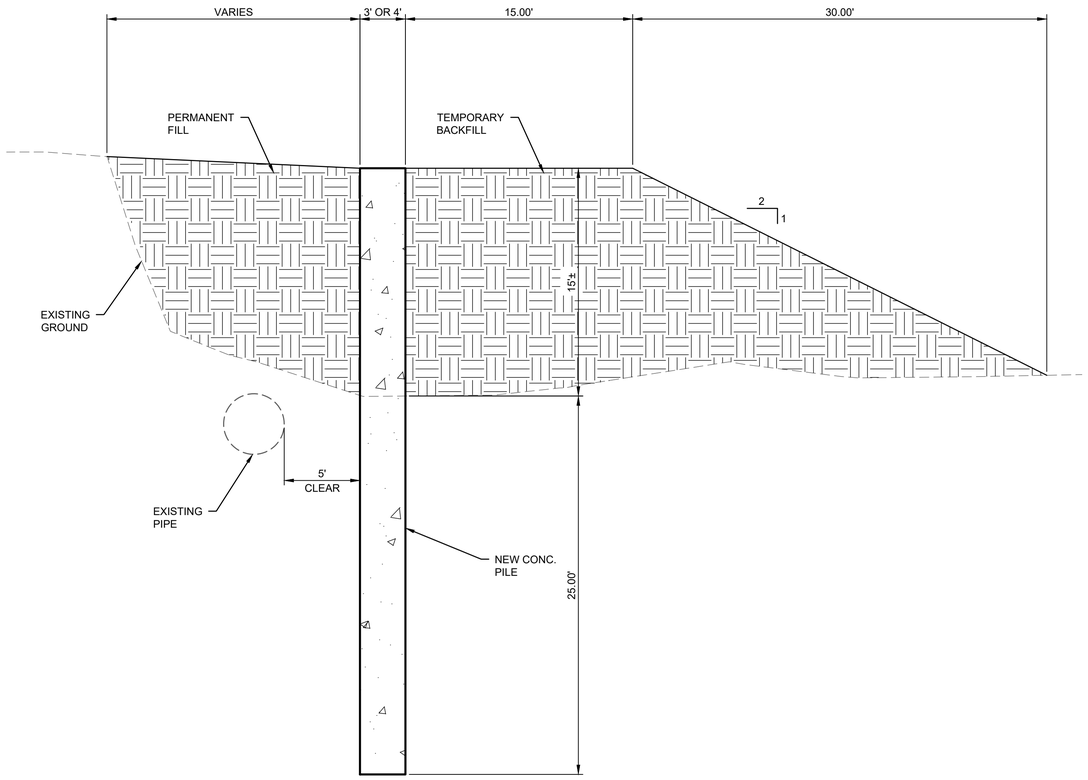
(#) BUILD NOTES

1. **REINFORCED DRILLED PILES. PILE DIAMETER MAY BE 3'-0" DIA. OR 4'-0" DIA. (CONTRACTOR'S OPTION). REINFORCING FOR 3'-0" DIA. PILES SHALL BE (10) #8 BARS VERT. AND #3 TIES AT 16"O.C. REINFORCING FOR 4'-0" DIA. PILES SHALL BE (12) #8 BARS VERT. AND #3 TIES AT 12"O.C.**

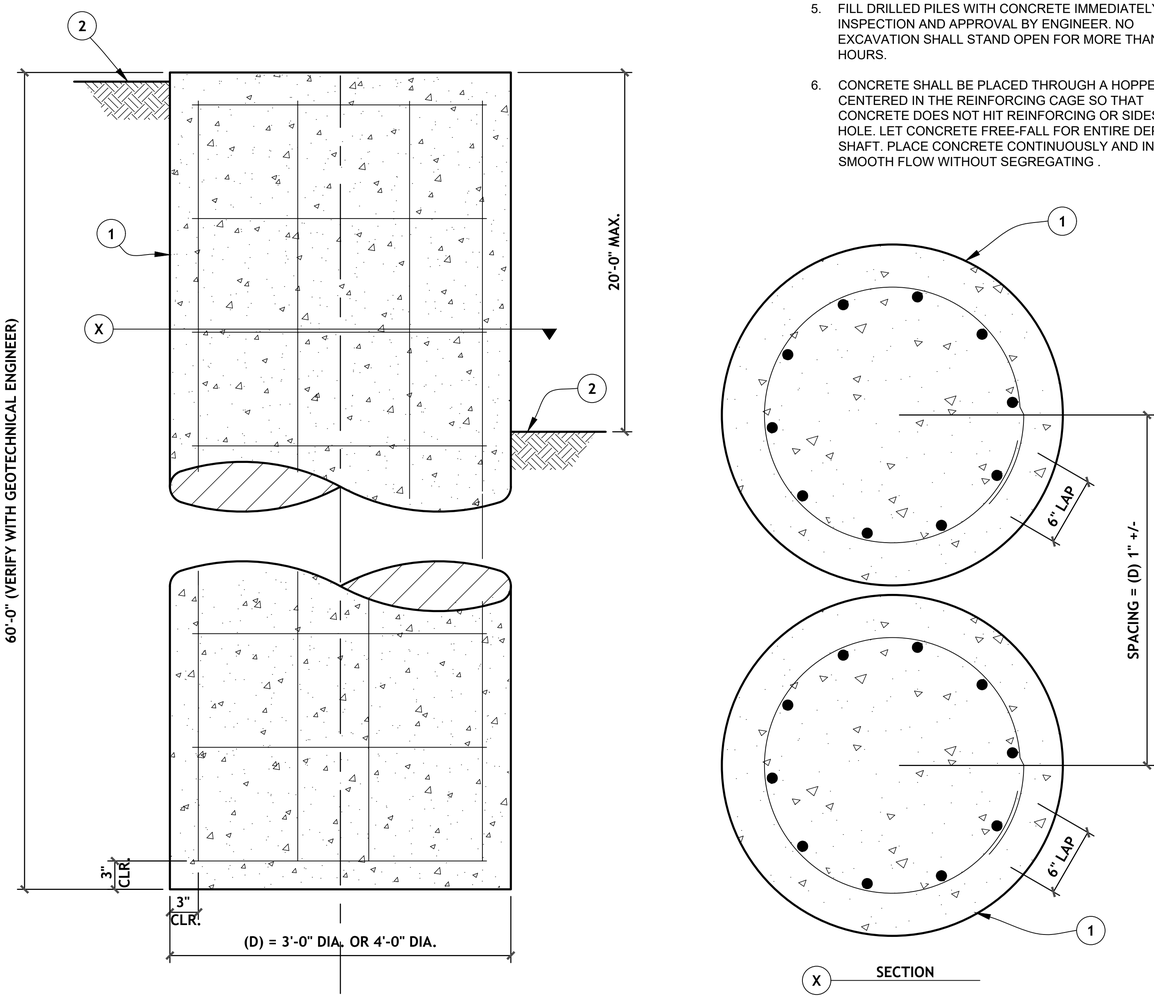
2. **EXISTING GRADE.**

GENERAL NOTES

1. SEE SHEET C26 FOR PLAN LAYOUT OF STRUCTURAL PILE WALL.
2. COMPLY WITH PROVISIONS OF AMERICAN CONCRETE INSTITUTE (ACI) STANDARD SPECIFICATION FOR CONSTRUCTION OF DRILLED PILES (ACI 336.1).
3. DESIGN CONCRETE MIX IN ACCORDANCE WITH CHAPTER 3 OF ACI 301 TO PRODUCE CONCRETE FOR DRILLED PILES WITH MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. FABRICATE AND ERECT REINFORCING CAGES IN SHAFTS AS ONE CONTINUOUS UNIT USING INNER RING REINFORCING STEEL. PLACE REINFORCING ACCURATELY AND SYMMETRICALLY ABOUT AXIS OF HOLE AND HOLD SECURELY IN POSITION DURING CONCRETE PLACEMENT.
5. FILL DRILLED PILES WITH CONCRETE IMMEDIATELY AFTER INSPECTION AND APPROVAL BY ENGINEER. NO EXCAVATION SHALL STAND OPEN FOR MORE THAN 8 HOURS.
6. CONCRETE SHALL BE PLACED THROUGH A HOPPER CENTERED IN THE REINFORCING CAGE SO THAT CONCRETE DOES NOT HIT REINFORCING OR SIDES OF HOLE. LET CONCRETE FREE-FALL FOR ENTIRE DEPTH OF SHAFT. PLACE CONCRETE CONTINUOUSLY AND IN A SMOOTH FLOW WITHOUT SEGREGATING .



A SECTION



1 TANGENT PILE WALL DETAIL

SCALE: 1 1/2" = 1'-0"

NO.	DATE	REVISION NO. & DESCRIPTION	BY
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SCALE: 1"=40'

ATTENTION
0 1/2" 1"
GRAPHIC SCALE
THIS BAR MEASURES 1" AT FULL SCALE (22x34)

DESIGN TRACKING

DESIGNED BY:	JL	DATE:	11–2021
DRAWN BY:	AB, JF	DATE:	11–2021
CHECKED BY:	JL	DATE:	04–2022
CROSS CHK'D BY:	–	DATE:	–
APPROVED BY:	–	DATE:	–

MAPS/RECORDS INFO.

SUBMITTED BY:

Smith Engineering Company
Solutions for Today... Vision for Tomorrow
2201 San Pedro Dr. NE | Building 4, Suite 200 | Albuquerque, NM 87110 | 505-884-0700 | smithengineering.pro

–

AS BUILT INFORMATION

CONTRACTOR:	–		
WORK STAKED BY:	–	DATE:	–
INSPECTOR'S ACCEPTANCE BY: INSPECTOR'S NAME:	–	DATE:	–
FIELD VERIFICATION BY:	–	DATE:	–
DRAWINGS CORRECTED BY:	–	DATE:	–

ENGINEER'S SEAL

ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

TITLE: KIRTLAND INTERCEPTOR REHAB CONSTRUCTION

ADDITIVE ALTERNATE I
STRUCTURAL DETAILS

WATER AUTHORITY CONSTRUCTION PROJECT NO.	2735.00	ZONE MAP NO.	–	SHEET	C27

BID SET

SEQ. 34 OF 34

File Path: Q:\SEC---PROJECTS\120101-22\CADD\PLANSET\34 STRUCTURAL DETAILS.dwg LT: 34 STRUCTURAL DETAILS Date: October 21, 2021

Appendix B. USFWS IPAC List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542
http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: March 07, 2022
Project Code: 2022-0016666
Project Name: Tijeras Interceptor Bank Stabilization Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

Project Summary

Project Code: 2022-0016666
Event Code: None
Project Name: Tijeras Interceptor Bank Stabilization Project
Project Type: Pipeline - Onshore - Maintenance / Modification - Below Ground
Project Description: Albuquerque Bernalillo County Water Utility Authority (ABCWUA) proposes bank stabilization measures to a portion of the Tijeras Arroyo that is currently threatening the structural integrity of an existing ABCWUA sewer line in Albuquerque, NM (Appendix A, Maps 1 - 3).
The proposed project would include installing rip-rap and gabion baskets within the arroyo to protect the sewer line from future high volume flows down the Tijeras Arroyo.
The proposed bank stabilization would protect existing infrastructure from damage associated with the Tijeras Arroyo, which is currently incising and extremely instable.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.0302595,-106.57909726174883,14z

Counties: Bernalillo County, New Mexico

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
New Mexico Meadow Jumping Mouse *Zapus hudsonius luteus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

Birds

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Rio Grande Silvery Minnow *Hybognathus amarus*	Endangered

Population: Wherever found, except where listed as an experimental population
There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/1391

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15

NAME	BREEDING SEASON
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

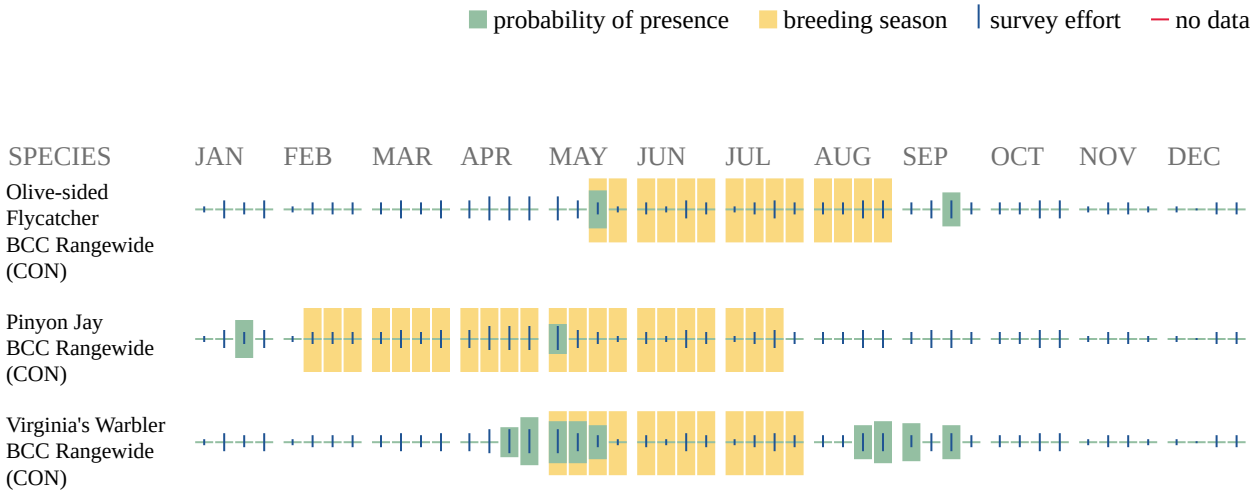
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.
Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell

me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

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Appendix C. USFWS IPAC List

ROCKY MOUNTAIN ECOLOGY
ENVIRONMENTAL CONSULTING | APPLIED RESTORATION SERVICES

Smith Engineering Company
Attn: Jared Lujan, PE
2201 San Pedro NE, Bldg 4, Suite 200
Albuquerque, NM 87110

Re: Planting Plan to Mitigate Impacts to the Tijeras Arroyo as part of the Tijeras Interceptor Reinforcement Project

The Albuquerque Bernalillo County Water Utility Authority (ABCWUA) proposes reinforcement measures between the Tijeras Arroyo and the ABCWUA-administered interceptor sewer line in Albuquerque, NM. Refer to the Attachment to the USACE PCN Form for the Tijeras Interceptor Reinforcement Project.

As the Tijeras Arroyo is a jurisdictional Water of the U.S. (WOUS), the project requires permitting under the Clean Water Act (CWA) Section 404, which is administered by the U.S. Army Corps of Engineers (USACE), and Section 401 which is administered by the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB). Smith Engineering Company (SEC), on behalf of ABCWUA, retained Rocky Mountain Ecology (RME) for assistance with the permitting process for the project. Coverage for the project under Nationwide Permit 13, Bank Stabilization, is currently being gained which will satisfy Section 404 of the process. Section 401 of the CWA, as directed by NMED SWQB, will require mitigation in the form of planting to augment the existing arroyo riparian vegetation community within the Tijeras Arroyo. The Tijeras Interceptor Reinforcement Project will include approximately 66 feet (horizontal) by 15 feet (vertical) or 990 square feet of a proposed (exposed) concrete pile wall along the Tijeras arroyo.
RME has again been retained to synthesize a planting plan or strategy to meet this requirement. This memorandum addresses the overall approach to the planting effort that will most effectively benefit the arroyo condition.

A suitable location has been identified for the planting effort, which occurs approximately 1.2 river miles west of, and downstream of the impact area (Figure 1). The location was selected due to improved ease of access, good relative connectivity to the impact area, and its position downstream of the impact area, which could decrease impacts occurring at the impact site from traveling further downstream (i.e. sedimentation occurring at the impact site could be retained or trapped at the planting site). NMED SWQB has directed the use of desert willow (*Cholopsis linearis*) as the planting species due to its ready availability and high likelihood of survivorship.

It is recommended that up to 60 “tall pot” desert willows be planted in the planting area at a density of one plant for every 25 square feet (Figure 2). This will ensure, at maturity, that the planted area provides a dense vegetative structure (i.e. canopy cover) that will benefit nesting birds, provide adequate shade for terrestrial wildlife seeking refuge from heat, and provide a strong root mass to prevent further erosion and potentially capture and retain pollutants flowing down the arroyo. Willows should be planted at or slightly below the Ordinary High Water Mark (OHWM), defined as the intersection between the active floodplain and the lower terrace. Planting should take place either in the spring following last frost, or in the fall approximately 30 days before last frost. Fall planting is considered the better of the two options and will likely foster higher survivorship. If

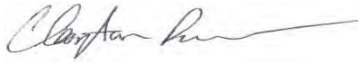
spring planting occurs during an abnormally dry period, supplemental watering may need to occur to avoid high rates of mortality. The following bullets detail the recommended procedures for a successful planting effort:

- Procurement of up to 60 tall pot desert willows;
- Keep tall pot willows moist during any significant storage times between procurement and planting;
- One tall pot willow per 25 ft^2 planted at or slightly below the OHWM zone;
- Each tall pot willow should be planted to a depth of where the root collar and the existing soil meet. Straw or mulch could be applied to the soil to increase soil moisture retention while plants establish;
- Recommend fall planting effort, approximately 30 days before first frost. Spring planting may require supplemental watering to prevent high rates of mortality;
- Permanent photo points could be established to document planting effort over time.

It is noteworthy that no planting effort is without risk. However, with adherence to the above guidelines it is likely that the desert willow planting effort could yield successful results and improve the health of the vegetative community in the Tijeras Arroyo.

If you have any questions or concerns, please feel free to contact.

Signature(s):

Prepared by:  Date: 10/05/2022

Clay Bowers, Rocky Mountain Ecology, LLC

Figure 1. Aerial Map

Legend

- DOD
- Private
- State

0 0.1 0.2 0.4 Miles

N W E S

Project Location

Map created by Rocky Mountain Ecology, 09/2022

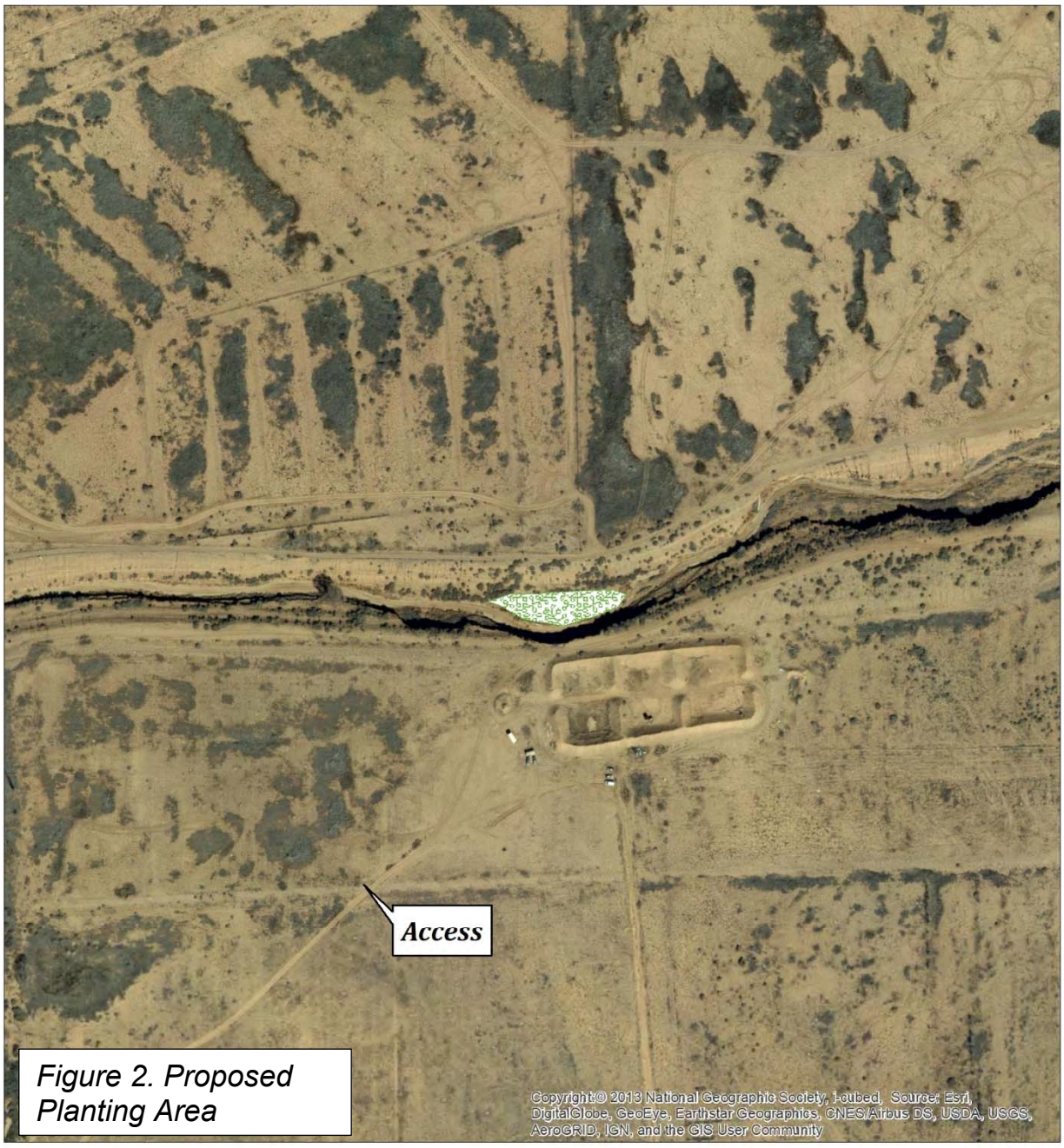


Figure 2. Proposed Planting Area

Legend

Planting Area

0 0.0275 0.055 0.11 Miles

N W E S

Project Location

Map created by Rocky Mountain Ecology, 09/2022

Photo 1: Looking upstream, middle of proposed planting area.

Photo 2: Looking upstream, lower middle of proposed planting area.