



**Agricultural Research Center  
U.S. Department of Agriculture  
Cropping Systems Research Laboratory  
Lubbock, TX**

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## **Proposed Land Exchange of Federal and Private Lands Big Spring and Lubbock Texas Project**

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## Executive Summary

The U.S. Department of Agriculture (USDA), Agriculture Research Service (ARS), Plains Area Office is proposing a land exchange of ARS land in Big Spring, Howard County, TX with privately-owned land in Hale County, near Abernathy, TX. The ARS land in Big Spring, TX is approximately 103 acres and is associated with the Cropping Systems Research Laboratory in Lubbock, TX. The ARS Cropping Systems Research Laboratory has been conducting research on the Big Spring site since 1915, with the research focused primarily on soil composition and moisture, wind erosion, crop cultivation, and limited livestock production. For the past several decades, research has been limited to wind erosion, soil, and plant stress studies associated with drought. One of the current primary research focuses of the ARS Cropping Systems Research Laboratory is farm cultivation research as it involves modern irrigation and other farming practices.

This environmental assessment (EA) analyzes the proposed land exchange of the ARS Big Spring site with privately-owned land near Lubbock, TX, and their impacts on the environment. There are two alternatives—Proposed Action and No Action alternatives—evaluated to determine the direct, indirect, and cumulative impacts that could result to the human environment. The direct and indirect impacts of the Proposed Action would primarily be minor and temporary impacts associated with construction activities. The newly discovered sites on the ARS Big Spring site were both recommended as not eligible for listing on the National Register of Historic Places (NRHP). The first site was a historic trash scatter from houses that were removed, and the second site was a prehistoric lithic scatter. Four newly discovered sites were found on the privately-owned sites during the pedestrian surveys. Of these, one site is recommended as eligible for inclusion in the NRHP on the Church Farm site. The recommended eligible site is where the Methodist Church was located in the southeast corner. The Proposed Action would also not result in significant cumulative impacts when considered in combination with the past, present, and reasonably foreseeable future actions. The cumulative impacts to cultural resources would not likely be substantial in the foreseeable future because cultural resource surveys have been completed for all sites and eligible sites would be avoided by future development.

Implementation of best management practices and drilling requirements for oil and gas wells would avoid, minimize, or mitigate potential minor adverse impacts as discussed in the EA. Implementation of the best management practices described in the EA would reduce the potential impacts of the Proposed Action, resulting in no significant adverse impacts to the environment. Therefore, preparation of an EIS is not required.

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# 1. Introduction

## 1.1 Background

The U.S. Department of Agriculture (USDA), Agriculture Research Service (ARS), Plains Area Office is proposing a land exchange of ARS land in Big Spring, Howard County, TX (Figure 1) with privately-owned land in Hale County, near Abernathy, TX (Figure 2). The ARS land in Big Spring, TX is approximately 103 acres and is associated with the Cropping Systems Research Laboratory in Lubbock, TX. The ARS Cropping Systems Research Laboratory has been conducting research on the Big Spring site since 1915, with the research focused primarily on soil composition and moisture, wind erosion, crop cultivation, and limited livestock production. For the past several decades, research has been limited to wind erosion, soil, and plant stress studies associated with drought. One of the current primary research focuses of the ARS Cropping Systems Research Laboratory is farm cultivation research as it involves modern irrigation and other farming practices.

This environmental assessment (EA) analyzes the proposed land exchange of the ARS Big Spring site with privately-owned land near Lubbock, TX, and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (40 CFR parts 1500-1508), USDA National Environmental Policy Act (NEPA) regulations (7 CFR 1b), ARS NEPA regulations (7 CFR 250), and other relevant federal and state laws and regulations.

## 1.2 Purpose and Need

The purpose of the project is to exchange the ARS land in Big Spring, TX with privately-owned land in Abernathy, TX about 20 miles north of Lubbock. The ARS Cropping Systems Research Laboratory needs land suitable to conduct farm cultivation research as it involves modern irrigation and other farming practices. The Big Spring site is only suitable for rain-fed or dryland crop production research, which does not meet the lab's research needs and mission priorities for farm cultivation research. The land exchange for privately-owned land would provide land suitable for farm cultivation research, allowing the ARS Cropping Systems Research Laboratory to meet their current research needs and mission priorities.

## 1.3 Relationship to Environmental Regulations and Laws

A variety of laws, regulations, executive orders, and other types of requirements apply to federal actions and form the basis of the analysis presented in this EA. The NEPA requires federal agencies to consider the potential environmental consequences of proposed actions and to enhance the environment through well-informed federal decisions. The Council of Environmental Quality was established under NEPA to implement regulations (40 CFR) and to oversee federal policy in this process.

The USDA ARS would comply with all applicable federal, State, and local laws. These laws and regulations may include but are not limited to the following:

- The Endangered Species Act of 1973 (P.L. 94-325),
- The Migratory Bird Treaty Act of 1918 (MBTA), as amended (16 U.S.C. 703-712),
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. Chapter 103),
- The Antiquities Act of 1906, as amended (P.L. 52-209),
- The National Historic Preservation Act of 1966, as amended (P.L. 89-665),
- The Archaeological and Historic Preservation Act of 1974 (P.L. 86-253),
- The Archaeological Resources Protection Act of 1979, as amended (P.L. 96-95),
- The American Indian Religious Freedom Act of 1978, as amended (42 U.S.C. 1996), and
- The Native American Graves Protection and Repatriation Act of 1990 (P.L. 101-601).



Figure 1. ARS Big Spring Site Vicinity Map.

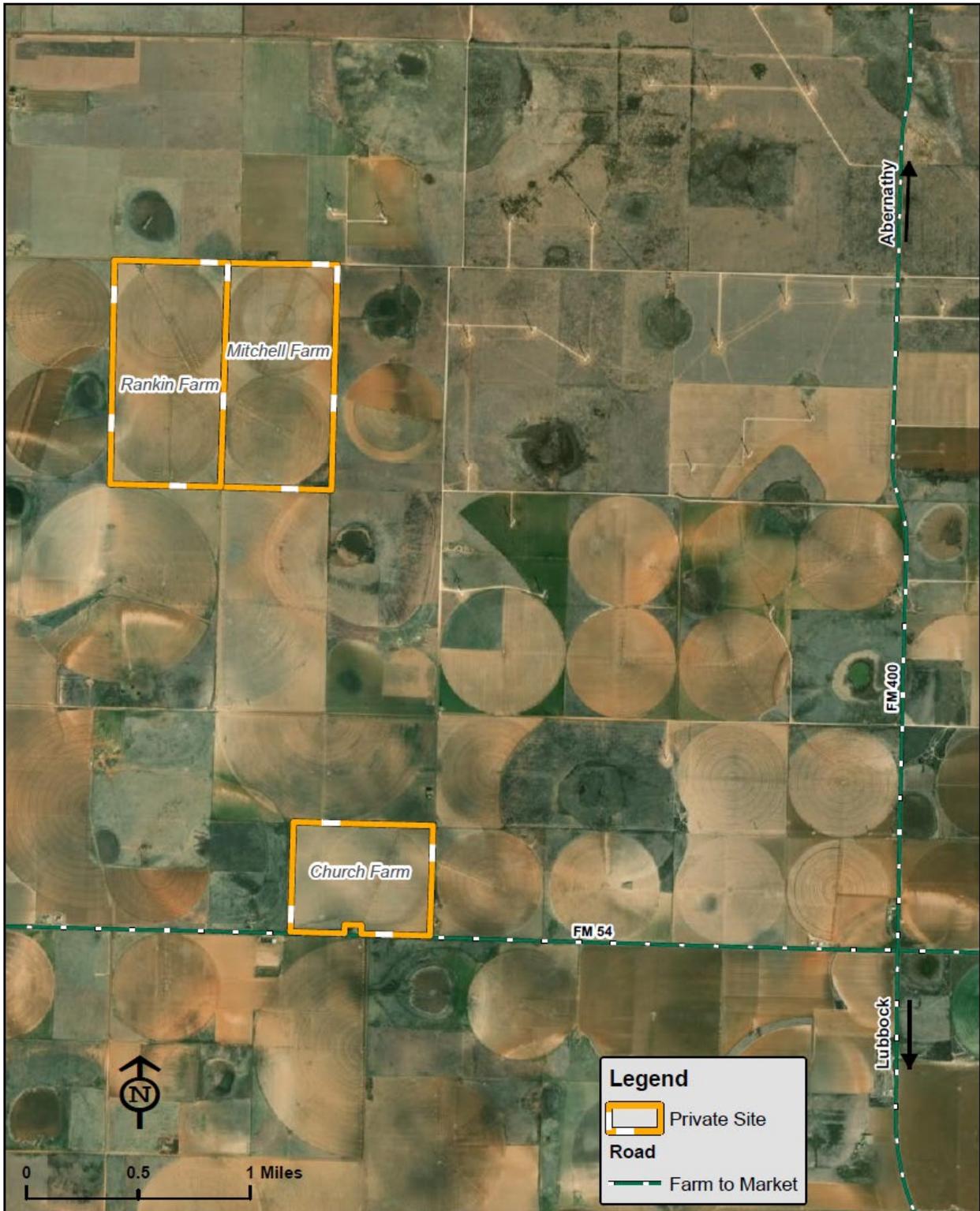


Figure 2. Privately-owned Sites Vicinity Map.

## 2 Alternatives

This chapter describes two alternatives (proposed action and no action alternative) that the USDA ARS is considering for the land exchange.

### 2.1 Proposed Action

#### *ARS Big Spring Site*

The ARS land in Big Spring, TX would be exchanged for privately-owned land in Abernathy, TX, about 20 miles north of Lubbock, TX. The land exchange would allow the ARS Cropping Systems Research Laboratory to meet their research needs and mission priorities for farm cultivation research as it pertains to modern irrigation and other farming practices. The Big Spring site would be acquired by a third-party oil and gas company that would construct and install a wellsite and associated flow pipelines. The proposed wellsite would be approximately 400 feet by 400 feet in size and contain wells to transport oil pursuant to the Mineral Interest Pooling Act for the Bauer/Goliad Unit. The wellsite would be cleared of vegetation. Clearing vegetation is typically accomplished by cutting, mowing, or grading. The wells would be drilled vertically with the depth dependent on the target formation depth.

The flow pipelines would be constructed using the open trench method, which includes clearing of vegetation, removal of topsoil, and open trenching. The topsoil would be stockpiled separate and covered from general excavation material to be utilized to bury the trenches. The excavation to create the trench may be done using bulldozers, scrapers, track hoes, or trenchers. The pipeline trench would typically average a depth of 5 feet deep, with trench width of 4 feet. The right-of-way (ROW) to construct a pipeline is typically 50 feet centered on the centerline of the pipeline. The 50-foot ROW would provide for construction and future maintenance activities to be conducted safely and efficiently. The pipelines would tie into existing facilities located east of the Big Spring site. Once the pipelines were installed, the disturbed areas would be returned to their approximate original contours and reseeded. These areas would be monitored and remediated for erosion, weed control, and reseeding.

#### *Privately-owned Sites*

There are three, privately-owned sites that would be exchanged for the ARS Big Spring site—Rankin Farm (320 acres), Mitchell Farm (320 acres), and Church Farm (204 acres)—located in Abernathy, Hale County, TX. The Rankin Farm and Mitchell Farm sites are contiguous, and the Church Farm site is about 1.5 miles south of the other two sites (Figure 2). All three sites are active agricultural fields that have corn, cotton, and wheat planted. Each site uses a center pivot irrigation system and has three, active water wells. The Church Farm site also has a drip irrigation system in place. The Rankin Farm site is the only one with existing structures, an abandoned brick house and barn.

The USDA ARS, Cropping Systems Research Laboratory would continue to use the sites as agricultural fields to grow cotton, sorghum, peanuts, and corn, but may need to reconfigure some of the field layouts for their agricultural research needs. A building may be constructed to house farming equipment, a breakroom/kitchenette area, and bathroom facilities for employees.

### 2.2 No Action Alternative

The USDA ARS would not exchange the Big Spring site for the privately-owned sites. This alternative would prevent the ARS Cropping Systems Research Laboratory from meeting their research needs and mission priorities for farm cultivation research. The Big Spring site is only suitable for rain-fed or dryland (i.e., low irrigation or no irrigation) crop production research.

## 3 Affected Environment and Environmental Consequences

Chapter 3 describes existing resources at the ARS Big Spring site and privately-owned sites and environmental consequences within the sites as they relate to the implementation of the proposed alternatives as described in Chapter 2. This EA analyzes both beneficial and adverse impacts that could result from implementing the alternatives considered.

### 3.1 Land Use

#### 3.1.1 Affected Environment

##### *ARS Big Spring Site*

The Big Spring site has been used for research with agricultural crops planted by the ARS Cropping Systems Research Laboratory from 1915 to 2012. In the 1970s, an orchard was installed in the northwestern corner of the site to test hardiness of plants under different climatic conditions. In 2012, the research experiments ended, and the agricultural fields were planted with grass. Today, most of the research experiments are conducted at the ARS Cropping Systems Research Laboratory in Lubbock, TX.

The Big Spring site is designated as outside city limits (about 90 acres) and light industrial (about 13 acres), which accommodates industrial development by the City of Big Spring (McCall and Associates 2019). The Big Spring site is surrounded by retail/commercial development along I-20 and U.S. Highway 87, with a hotel and TA Truck Stop/gas station immediately adjacent on the west. The area surrounding the Big Spring site is generally commercial development to the east and west and oil fields and vacant tracts of land to the north.

##### *Privately-owned Sites*

The current land use on the privately-owned sites is agriculture that are planted with corn, sorghum, and cotton. The privately-owned sites are surrounded by private lands also used for agriculture. The Rankin Farm site contains an abandoned residential home and barn that was used by the Rankin family when they owned and farmed the land.

#### 3.1.2 Analysis of Alternatives and Impacts on Land Use

##### **Proposed Action**

##### *ARS Big Spring Site*

The ARS Big Spring site is located in an industrial developed area surrounded by commercial/retail, semi-rural lands, and oil and gas support services (McCall and Associates 2019, BRIC LLC 2020a). The subsequent proposed installation of flow lines by a third-party oil and gas company would temporarily remove vegetation until completion of the flow lines and reclamation of the right-of-way. A small area associated with the wellsite, about 4 acres, would permanently remove vegetation and the availability for other land uses, with about 100 acres remaining as it currently exists. The change of the current land use from agriculture to oil and gas support services is consistent with the mixed use of the area. The area has commercial development along Interstate 20 and U.S. Highway 87 and semi-rural and vacant lands and oil and gas support services to the north. Additionally, the 13 acres within the city limit of Big Spring is identified for light industrial development. The light industrial designation is designed to accommodate industrial development that has little or no impact on the surrounding area. The remaining 90 acres is outside the city limit and not subject to zoning. The change in land use from agriculture to oil and gas support services would be in compliance with the Big Spring zone of light industrial use and would have no adverse impacts to the surrounding land uses.

*Privately-owned Sites*

Land use on the privately owned sites would remain the same as it currently exists, agricultural lands. The ARS Cropping Systems Research Laboratory would grow cotton, sorghum, peanuts, and corn, and may need to reconfigure some of the field layouts for their agricultural research needs. The construction of a building to store farming equipment and provide a breakroom/kitchenette area and bathroom facilities would not change the land use from agriculture. The ARS Cropping Systems Research Laboratory would use the building to conduct necessary daily operations for the agricultural research crops.

**No Action**

The land exchange would not occur under the No Action Alternative, thus, would not change the current land uses on the sites. The Big Spring site would remain unused under this alternative; thus, no adverse impacts would occur to land use.

**3.2 Soils**

**3.2.1 Affected Environment**

*ARS Big Spring Site*

There are five soil types found at the ARS Big Spring site—Amarillo fine sandy loam, 0 to 1 percent slopes (AfA); Amarillo fine sandy loam, 1 to 3 percent slopes (AfB); Acuff loam, 0 to 1 percent slopes (AcA); Arvana fine sandy loam, 1 to 3 percent slopes (AvB); and Midessa fine sandy loam, 1 to 3 percent slopes (PfB) (Figure 3). The dominant soil types are Acuff loam and Amarillo fine sandy loam. The soils are characterized as well drained, fine sandy loam and loams that are primarily derived from loamy eolian deposits (NRCS 2020a). Soil have been disturbed by tilling and planting of crops for research projects.

*Privately-owned Sites*

The privately-owned sites have eight soil types (Figure 4), which can be found in Table 1 by site. The dominant soil type is Pullman clay loam, 0 to 1 percent slopes (PuA; about 88%) followed by Olton loam, 0 to 3 percent slopes (OtB; about 4%), and Olton loam, 0 to 1 percent slopes (OtA; about 4%). The soils are clay loam and loam soils that are predominantly well drained with about 6 acres in the northern portion of the Rankin Farm identified as poorly drained (NRCS 2020b). The soils on the privately-owned sites are predominantly derived from clayey eolian deposits from the Blackwater Draw Formation.

**Table 1. Soil Types for Privately-owned Sites**

Soil Type	Site Name		
	Rankin Farm (acres)	Mitchell Farm (acres)	Church Farm (acres)
Estacado loam, 1 to 3 percent slopes (EsB)	13	—	—
Lofton clay loam, 0 to 1 percent slopes, rarely ponded (Lo)	7	1	—
Mansker loam, 0 to 3 percent slopes (MkB)	5	—	—
Mansker loam, 3 to 5 percent slopes (MkC)	—	3	—
Olton loam, 0 to 1 percent slopes (OtA)	12	—	19
Olton loam, 1 to 3 percent slopes (OtB)	6	30	—
Pullman clay, 0 to 1 percent slopes (PuA)	271	283	175
Randall clay, 0 to 1 percent slopes, occasionally ponded (Ra)	6	1	—
<b>Total<sup>1</sup></b>	<b>320</b>	<b>316</b>	<b>194</b>

<sup>1</sup>Based on GIS data from Natural Resource Conservation Service (NRCS).

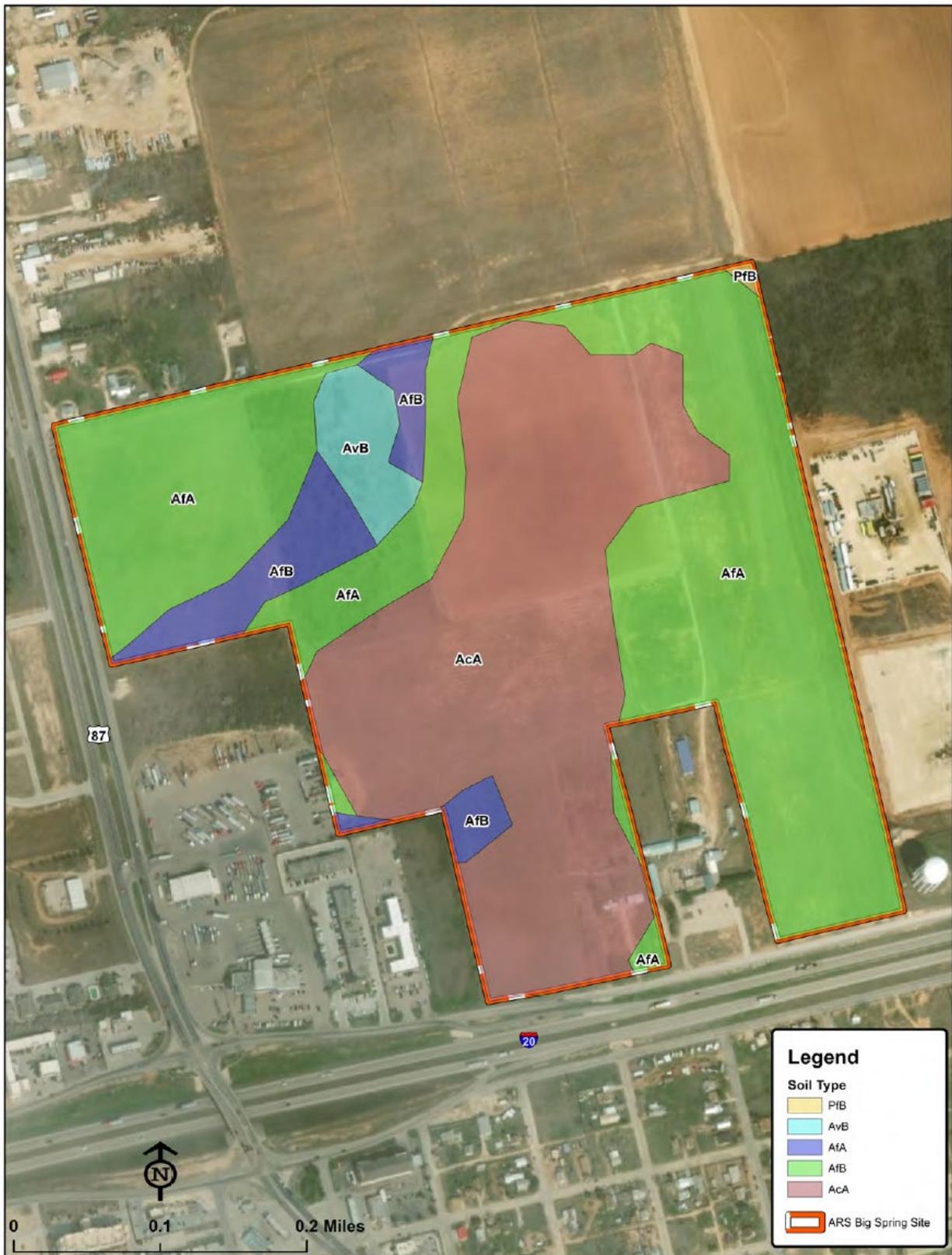


Figure 3. Soil Types on Big Spring Site.



Figure 4. Soil Types on Privately-owned Sites.

### 3.2.2 Analysis of Alternatives and Impacts on Soils

#### Proposed Action

##### *ARS Big Spring Site*

Most soils in the ARS Big Spring site have been disturbed by tilling and planting of research crops. The subsequent use by the oil and gas company would disturb soils to install the wellsite (approximately 4 acres) and the flow lines. Soils that would be disturbed could be structurally mixed, displaced, and exposed to potential wind and water erosion from storm events. Once the flow lines are completed the disturbed areas would be reseeded, reducing susceptibility to erosion once the seeds become established. The amount of soils lost to erosion is unknown but is expected to be low based on the generally gentle slopes on the ARS Big Spring site and implementation of best management practices to prevent erosion. Best management practices that would be implemented include but are not limited to stockpiling topsoils to be used later for burying the trenches. With implementation of best management practices, the proposed construction and installation of wellsite and flow lines would be minor adverse impacts.

##### *Privately-owned Sites*

The ARS would continue to use the privately-owned sites for agricultural crops and may require reconfiguring the layout of the crops. Reconfiguring the layout of the crops would not require new soil disturbance. The construction of a new building to house farming equipment, a breakroom/kitchenette area, and bathroom facilities would require grading. Excavation would also be required if a septic tank is installed. Impacts of soil disturbance associated with construction of a building would be minimized using sediment and erosion control best management practices.

#### No Action

Under the No Action Alternative, the land exchange and subsequent construction would not occur. Soils would not be disturbed, thus, no adverse impacts to soils would occur.

## 3.3 Prime Farmland

### 3.3.1 Affected Environment

The ARS Big Spring site is primarily classified as prime farmland with about 4 acres classified as farmland of statewide importance, if irrigated (NRCS 2020a). Prime farmlands are lands that have the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops, with a minimum use of fertilizers, fuel, pesticides, and labor. Farmland of statewide importance is locally important for producing food, feed, fiber, forage, and oilseed crops.

The privately owned sites are primarily classified as prime farmland with approximately 816 acres and about 7 acres classified as farmland of statewide importance if irrigated (NRCS 2020b). The farmland classification for each site is located in Table 2.

**Table 2. Prime Farmland Classification for Privately-owned Sites**

Site Name	Prime Farmland (acres)	Statewide Importance if Irrigated (Acres)	Not Prime Farmland (Acres)
Rankin Farm	310	4	6
Mitchell Farm	313	3	1
Church Farm	193	—	—
<b>Total</b>	<b>816</b>	<b>7</b>	<b>7</b>

### 3.3.2 Analysis of Alternatives and Impacts on Prime Farmland

#### Proposed Action

##### *ARS Big Spring Site*

Most soils located on the ARS Big Spring site were identified as prime farmland by the National Resource Conservation Service. However, the soils have not been used for research crops by the USDA ARS Cropping Systems Research Laboratory since 2012 when the research experiments ended. The subsequent proposed construction of a wellsite and flow lines would remove about 4 acres of land designated as prime farmland and temporarily disturb the areas where flow lines are installed. The flow line areas would be recontoured and seeded once completed, thus, leaving most of the site as it exists, idle agricultural fields with scattered honey mesquite (*Prosopis glandulosa*) and grasses along the edges of the site. The ARS Big Spring site would continue not to be used as farmland with the development oil and gas infrastructure. Negligible adverse impacts would be expected to occur to prime farmland from the construction of the proposed wellsite and flow lines.

##### *Privately-owned Sites*

Most soils on the privately-owned sites were identified as prime farmland by the National Resource Conservation Service (Table 2). The sites would continue to be used as agricultural lands, with the ARS Cropping Systems Research Lab planting research crops. The construction of a building to house farming equipment and employee facilities could be built but would not remove prime farmland being used as agricultural fields; the building would likely be constructed outside the existing agricultural fields. Therefore, no impacts to prime farmland would be expected with the subsequent proposed use of the privately-owned sites.

#### No Action

No impacts to prime farmland would be expected because the proposed land exchange would not occur. The ARS Big Spring site would remain as mostly idle agricultural fields and the privately-owned sites would continue to be planted with agricultural crops.

## 3.4 Water Resources

### 3.4.1 Affected Environment

Both sites are underlain by the unconsolidated, Ogallala Aquifer that consists of sand, gravel, clay, and silt (Texas Water Development Board 2020a). This aquifer is the largest in the U.S. and provides most of the groundwater for Texas.

##### *ARS Big Spring Site*

The ARS Big Spring site has about 1 acre located within the 100-year floodplain in the southeastern corner of the property. There is no surface water present on the site (BRIC LLC 2020b). There are two inactive cisterns that have been concreted and closed on the site.

##### *Privately-owned Sites*

The Rankin Farm site has about 6 acres located within the 100-year floodplain on the western boundary of the property (FEMA GIS Services). The U.S. Fish and Wildlife Service wetlands mapping database identified a palustrine wetland on the northern boundary of the Rankin Farm and Mitchell Farm sites. However, it was noted that the identified palustrine wetland has been removed due to physical alteration for production of crops (USFWS 2020). There is no surface water present on any of the sites.

All sites have three water wells and pivot irrigation systems used to water the crops. The Church Farm site also has a drip irrigation system in the western portion of the site. The water wells are only used for agricultural needs.

### **3.4.2 Analysis of Alternatives and Impacts on Water Resources**

#### **Proposed Action**

##### *ARS Big Spring Site*

There would be no direct impacts to water resources from the land exchange, and the subsequent oil and gas development would have no impacts on surface water. The proposed wellsite and flow lines would be built outside the 100-year floodplain located in the southeastern corner of the site. The drilling and completion of up to 8 oil and gas wells would require less than 1 acre-feet (AF) of groundwater; approximately 0.19 AF. Once the oil and gas wells were completed, each well would use about 0.06 AF annually for a total of up to 0.48 AF annually. The third-party oil and gas company would not be drilling a water well onsite but would purchase water from commercial depots in the area. Groundwater use estimates for mining activities in 2020 for Howard County is 3,400 AF (TXWDB 2020b). The groundwater usage for the oil and gas wells would comprise a small amount of total groundwater use with up to 0.48 AF annually, thus, would not be expected have a significant impact to groundwater quantities for drilling and completion of the wells and annual groundwater needs. Therefore, the proposed oil and gas development would be expected to have no impacts to groundwater quantity because the development and annual water needs of the oil and gas wells would not require additional groundwater pumping from the Ogallala Aquifer and comprises a small amount of total groundwater usage.

Groundwater quality would be protected by drilling the oil and gas wells using freshwater to a depth determined by the Texas Railroad Commission's (TRC) Groundwater Advisory Unit. The TRC Groundwater Advisory Unit requires all oil and gas wells to have a surface casing at least 25 feet below the base of usable quality water to protect groundwater. Surface casing and cement would be extended beyond the useable quality water zone and up to the surface. Surface casing is a pipe used in conjunction with the cement to prevent the mixing of oil and gas with groundwater and to keep the well from blowing out or caving in. The TRC requires all companies drilling new oil and gas wells to obtain a surface casing letter that shows where fresh and usable quality water are located. The TRC also uses the recommendations in the surface casing letter to design well requirements. The surface casing requirements would ensure that drilling fluids, hydraulic fracturing fluids, and produced water and hydrocarbons remain within the well bore and do not mix with groundwater. In addition, the well site would be inspected daily by the pumper to ensure no leaks and proper operation of all the equipment. Therefore, impacts to groundwater quality are highly unlikely with TRC requirements for drilling oil and gas wells and implementation of best management practices. Once the wells are operational, produced water associated with the wellsite would be transported via the proposed flow lines to the existing production facility to the east for separation. Produced water, oil, and gas would be separated at the existing production facility.

##### *Privately-owned Sites*

Agriculture crops would continue to be grown on the privately-owned sites for research purposes by the ARS Cropping Research Lab. The existing water wells and irrigation systems would be used for the research crops. Groundwater use would be expected to be the same as the current conditions, with the continued production of agriculture crops and some of the same crops, such as corn and cotton. Therefore, there would be no impacts to water resources from the proposed growing of agricultural crops for research. The USDA has no plans to develop the sites, meaning no changes to groundwater, stormwater, or floodplains.

## No Action

There would be no change to the existing conditions, thus no impacts to water resources.

## 3.5 Vegetation

### 3.5.1 Affected Environment

The ARS Big Spring site and privately-owned sites are a part of the High Plains Region of Texas, which typically consists of short-grass prairie, mesquite shrublands, agricultural crops, cottonwood (*Populus* spp.), and juniper (*Juniperus* spp.). The ARS Big Spring site consist primarily of agricultural fields with honey mesquite and goathead (*Tribulus terrestris*) interspersed throughout the site. There is a dense patch of kochia (*Bassia scoparia*) near the center of the site and areas along the eastern and northwestern portions of the site are dominated by cane bluestem (*Bothriochloa barbinodis*) and purple three-awn (*Aristida purpurea*). Subdominant vegetation includes sideoats grama (*Bouteloua curtipendula*), soaptree yucca (*Yucca elata*), plains prickly pear (*Opuntia polyacantha*), and juniper. Portions of the ARS Big Spring site have been disturbed by development of an access road, weather station, and two now removed houses and associated utilities left in place.

The privately-owned sites are primarily agricultural fields with goathead, sideoats gramma, cane bluestem, and cheatgrass (*Bromus tectorum*) along the edges of the fields and areas not used for agriculture (BRIC 2020a). Subdominant vegetation includes feather fingergrass (*Chloris virgata*) and johnsongrass (*Sorghum halepense*). A small portion of the Rankin Farm site has been developed with a house and barn.

### 3.5.2 Analysis of Alternatives and Impacts on Vegetation

#### Proposed Action

##### *ARS Big Spring Site*

The land exchange would not impact vegetation, but subsequent proposed construction of a wellsite and installation of flow lines would require the removal of vegetation. Direct impacts to plant communities would occur along the flow line rights-of-way, which are generally 50 feet in width from the centerline of the flow line, and about 4 acres for construction of the wellsite. Once the flow lines are completed, they would be buried, recontoured, and seeded to promote regrowth of native vegetation. Plant communities affected by direct or indirect impacts from the proposed oil and gas development could incur short- or long-term changes in species composition, abundance, and distribution. The plant communities that become established on areas disturbed from flow line construction would depend on the reclamation practices that are implemented, including the species selected, the species present adjacent to the construction area, the degree of disturbance to vegetation and substrates, and the vegetation management practices selected for implementation. Best management practices would be implemented to prevent establishment of noxious weeds in the flow line construction rights-of-way.

The proposed oil and gas development would permanently remove up to 4 acres of vegetation. The removal of up to 4 acres of vegetation and reseeding of the flow line rights-of-way would not be expected to impact substantial populations or communities of native plants. Therefore, impacts would be expected to be negligible to vegetation from the subsequent proposed oil and gas development.

##### *Privately-owned Sites*

The privately-owned sites have already been disturbed with agricultural fields as the dominant vegetation and native and non-native grasses along the edges of the crops. The ARS Cropping Systems Research Lab would continue to use the land for agriculture and would have no impacts to the existing vegetation beyond the current use. The proposed construction of a building to house farming equipment and provide facilities for the employees could require grading and excavation to prepare the site, which could remove

vegetation. However, the proposed building construction would not be expected to substantially impact native plant communities or populations with most of the sites dominated by agricultural fields. Therefore, impacts to vegetation would be negligible.

### **No Action**

No impacts would occur to vegetation under the No Action because no changes to existing vegetation would occur.

## **3.6 Wildlife**

### **3.6.1 Affected Environment**

The project sites primarily consist of agricultural fields with the edges of the fields and areas not used for agriculture dominated by grasses, such as cane bluestem and purple three-awn. The ARS Big Spring site also has scattered mesquite throughout the site. Based on field observations, wildlife that utilizes both the ARS Big Spring and privately-owned sites include but are not limited to black-tailed jackrabbit (*Lepus californicus*) and cottontail rabbit (*Sylvilagus* sp.). On the ARS Big Spring site, a black-tailed prairie dog (*Cynomys ludovicianus*) colony, a state species of concern, was observed that encompassed approximately 58.4 acres in size (BRIC LLC 2020b). There were also two burrowing owls (*Athene cunicularia*) observed within the black-tailed prairie dog colony on the ARS Big Spring site during the biological field survey (BRIC LLC 2020b).

#### *Migratory Birds*

All migratory birds are protected under the 1918 Migratory Bird Treaty Act (MBTA; 16 USC 703), as well as the Neotropical Migratory Bird Conservation Act (16 USC Chapter 80). Unless permitted by regulations, the MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including feathers or other body parts, nests, eggs, or migratory bird products. In addition, Executive Order 13186 sets forth the responsibilities of Federal agencies to implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that Federal actions evaluate the effects of actions and agency plans on migratory birds. Bird species that were observed during the biological field survey and could nest in the ARS Big Spring or privately-owned sites include great-tailed grackle (*Quiscalus mexicanus*), killdeer (*Charadrius vociferus*), northern mockingbird (*Mimus polyglottos*), western meadowlark (*Sturnella neglecta*), northern harrier (*Circus hudsonius*), lark sparrow (*Chondestes grammacus*), horned lark (*Eremophila alpestris*), mourning dove (*Zenaida macroura*) (BRIC LLC 2020b). The burrowing owls observed at the ARS Big Spring site are also protected under the MBTA.

### **3.6.2 Analysis of Alternatives and Impacts on Wildlife**

#### **Proposed Action**

##### *ARS Big Spring Site*

The proposed land exchange itself would have no impacts on wildlife or their habitat. The subsequent proposed oil and gas development could temporarily displace wildlife within or near the work area due to noise and human presence. Depending on where the proposed wellsite and flow lines are installed, wildlife habitat could suffer short-term degradation from loss of vegetation, which may provide forage and cover. However, all disturbed areas where flow lines would be installed would be reseeded with native grasses, thus, impacts would be negligible. The removal of up to 4 acres of vegetation would not impact wildlife population viability, such as but not limited to black-tailed jackrabbits and cottontails observed on the site. Incidental mortality of small animals could occur during clearing and preparation of the wellsite and flow lines. During installation of the flow lines, wildlife species could be entrapped in

trenches left open overnight. The open cut trench and burying of the flow line would occur concurrently when possible to minimize entrapment of wildlife species.

The ARS Big Spring site has undeveloped areas, albeit mostly agricultural fields and roadside habitat, but could remove ground vegetation suitable for nesting habitat. Grassland and shrub-nesting birds would be the most impacted, such as Cassin's sparrow (*Peucaea cassinii*) and lark sparrow (*Chondestes grammacus*). It is recommended that clearing and construction of the wellsite and flow lines occurs outside the primary breeding season for migratory birds (generally between March–August) to avoid any potential impacts. If clearing and construction occurs within the primary breeding season, removal of vegetation could result in incidental destruction of active bird nests, including eggs, hatchlings, and nestlings, and the temporary disruption of breeding territories of individual birds. A pre-construction nest survey would be required a week prior to construction activities during this time period. A standard buffer of no disturbance within 250 feet of active burrowing owl nests, and 50–100 feet of most active songbird nests during incubation to fledging is recommended (as determined by direct field observation or qualified literature source specific for nesting dates in the Southwestern U.S.). The 250-foot minimum buffer for burrowing owls is recommended at the Big Spring parcel since two individual burrowing owls were detected at the black-tailed prairie dog colony. There would be no impacts to migratory birds if avoidance recommendations are followed.

#### *Privately-owned Sites*

The privately-owned sites are primarily agricultural fields with grasses along the edges of the fields and areas not used for agriculture. The ARS Cropping Systems Research Lab would continue the current land use with planting research crops within the existing agricultural fields and would have no impact on wildlife or their habitat. The potential construction of a building for storing farming equipment and providing facilities for employees would remove vegetation to prepare the site. However, the building construction would negligibly impact wildlife habitat with the primary vegetation type being agricultural fields.

#### **No Action**

The No Action Alternative would result in no changes to the current wildlife habitat; therefore, there would be no impacts to wildlife.

### **3.7 Threatened and Endangered Species**

#### **3.7.1 Affected Environment**

Under the Endangered Species Act of 1973, any federally funded project has the responsibility to address impacts to federally listed and proposed species. A list of species and habitats of concern was provided by the Information for Planning and Conservation (U.S. Fish and Wildlife Service IPAC; Appendix A). There were five federally listed species identified that could occur on the sites. Three bird species— piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), and least tern (*Sterna antillarum*)— were dismissed from further analysis in this EA because they only need to be considered for wind related projects (see IPAC List in Appendix A). Two fish species—sharpnose shiner (*Notropis oxyrinchus*) and smalleye shiner (*Notropis buccula*)—were listed as potentially occurring within or near the project sites. The ARS Big Spring and privately-owned sites do not have perennial surface waters present, with the closest potential habitat greater than 25 miles from the sites (e.g., Brazos River, Colorado River). There is no designated critical habitat within the project sites (U.S. Fish and Wildlife Service IPAC; Appendix A).

A list of state listed species that have been recorded within and near the ARS Big Spring site and privately-owned sites was obtained from the Texas Natural Diversity Database (TXNDD) maintained by the Texas Parks and Wildlife Department. There were no state listed species known to occur within or near the sites (TXNDD 2020).

### **3.7.2 Analysis of Alternatives and Impacts on Threatened and Endangered Species**

#### **Proposed Action**

##### *Common to Both Sites*

The proposed action would have no effect on the sharpnose shiner or smalleye shiner because there is no suitable habitat within or near the sites. The closest perennial waterbodies are greater than 25 miles from the sites.

#### **No Action**

The No Action Alternative would have no effect on the sharpnose shiner or smalleye shiner because the existing conditions would not change. Additionally, there is no suitable habitat within or near the sites, with the closest perennial waterbodies over 25 miles away.

## **3.8 Cultural Resources**

### **3.8.1 Affected Environment**

Effects to cultural resources must be taken into consideration under every federally funded Proposed Action. The term “cultural resources” refers to any historic or prehistoric resource, or traditional cultural property that is important to the ongoing transmission of culture to a local tribe or group. This encompasses a wide range of material remains that have the potential to provide information about the continued human use and occupation of the project area. Cultural sites vary considerably and can include, but are not limited to, simple artifact scatters, structures, or structural remains of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails.

The National Register of Historic Places (36 CFR Part 60) is the basic benchmark by which the significance of cultural resources are evaluated by a federal agency, in consultation with tribes and the State Historic Preservation Office, when considering what effects its actions may have on cultural resources. To summarize, to be considered eligible for the NRHP a cultural resource must have integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following criteria: a) are associated with events that have made a significant contribution to the broad patterns of our history; b) are associated with the lives of significant persons in our past; does it c) embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; represent a significant and distinguishable entity whose components may lack individual distinction; or d) have yielded or may be likely to yield information important in history or prehistory. If a site, regardless of age, meets these standards it is referred to as a “historic property.”

The area of potential effect (APE) for direct physical effects on historic properties includes the ARS Big Spring site and privately-owned sites. All lands within the APE for the proposed action were surveyed for cultural resources by BLM archeologists. BRIC archeologists conducted Class III pedestrian surveys of the ARS Big Spring site and the three privately-owned sites from October 28 to November 19, 2020. Random soil test pits were also conducted as part of the cultural resource survey to meet Texas Historical Commission requirements. Shovel test pits were conducted to determine depth of the plow zone in the agricultural fields and to randomly test if there were any artifacts in the plow zone. A shovel test pit is a shovel pit 30–50 centimeters in diameter typically no deeper than 1 meter and often less depending on the soil texture and all are refilled after done.

*ARS Big Spring Site*

Two newly discovered sites were found at the ARS Big Spring site during the pedestrian survey. The first site was a historic trash scatter from houses that were removed, and the second site was a prehistoric lithic scatter. Of these, both sites are recommended as ineligible for inclusion in the NRHP. There were 38 isolated occurrences recorded within the ARS Big Spring site. Isolated occurrences fail to retain aspects of integrity necessary to convey their significance; therefore, they were not recommended eligible for listing in the NRHP.

*Privately-owned Sites*

Four newly discovered sites were found on the privately-owned sites during the pedestrian surveys. Of these, one site is recommended as eligible for inclusion in the NRHP on the Church Farm site. The recommended eligible site is where the Methodist Church was located in the southeast corner. The Rankin Farm site was a historical structure, residential home, that is recommended as ineligible because it does not meet any of the NHRP criteria listed previously. There were 30 isolated occurrences recorded within the privately-owned sites. Isolated occurrences fail to retain aspects of integrity necessary to convey their significance; therefore, they were not recommended eligible for listing in the NRHP. The breakdown of cultural resources by each site is in Table 3.

**Table 3. Cultural Resource Classification for Privately-owned Sites**

Site Name	Eligible Sites	Ineligible Sites	Undetermined Eligibility	Isolated Occurrences
Rankin Farm	—	1	—	11
Mitchell Farm	—	—	—	10
Church Farm	1	2	—	9

**3.8.2 Analysis of Alternatives and Impacts on Cultural Resources**

**Proposed Action**

Typical potential impacts include ground-disturbing activities, which could cause alterations to the physical integrity of a cultural site. The two cultural resource sites found on the ARS Big Spring site were both recommended as ineligible for listing on the NHRP. However, if cultural resources are encountered during construction, construction will cease in the immediate vicinity of the discovery until the resource could be identified and documented and an appropriate mitigation strategy developed in consultation with the Texas Historical Commission. The one NRHP-eligible site on the Church Farm site should have ground-disturbing activities and vehicular and heavy equipment restricted within 50-feet from the boundary of the site. BRIC LLC recommends a determination of *no adverse effect* on cultural resources within the area of potential effect if all parties involved adhere to the recommendations listed above. The cultural resource survey report will be submitted to the Texas Historical Commission for review and concurrence of the recommendations.

**No Action**

There would be no impacts to cultural resources because the land exchange would not occur.

## 3.9 Hazardous and Solid Waste Materials

### 3.9.1 Affected Environment

The U.S. Environmental Protection Agency regulates hazardous materials under the Resource and Conservation and Recovery Act (1976). The USDA ARS manages public health and safety by complying with federal and state hazardous material laws and regulations. A Phase I Environmental Site Assessment reconnaissance survey was conducted on the sites from October 20 to October 23, 2020. The reconnaissance surveys assessed the presence of petroleum products and hazardous or toxic materials at the sites.

#### *ARS Big Spring Site*

Three trespass oil drums were located on the western boundary with the TA Truck Stop. One of the three oil barrels was about half full and leaking with stained soils present (BRIC LLC 2020a). The leaking oil drum is a Recognized Environmental Condition. The TA Truck Stop has agreed to have the oil drums removed (personal communication Shane Wludyka, ARS Cropping Systems Research Lab, Facilities Operations Manager). Once the oil drums are removed, the ARS Cropping Systems Research Lab will have a company inspect and clean the area.

There are gas pipelines that cross the Big Spring site, but no observations or documents regarding spills have been identified on the site. The ARS compound, immediately to the east had a gas leak that occurred near the main building 3 to 4 years ago. The ARS compound adjacent to the Big Spring site also stores petroleum products, pesticides, and lead based paint, and has aboveground gas tanks. There are no active or leaking underground storage tanks within the Big Spring site (EDR 2020). There were also no CERCLA sites, toxic release facilities, water discharge areas, air emission facilities, or hazardous waste facilities listed on or near the Big Spring site (EDR 2020).

#### *Privately-owned Sites*

On the Church Farm site, there is an active aboveground tank that stores fertilizer for the agricultural fields with staining on the soil. On the Rankin Farm site, there is an abandoned house with a garage and barn located on the northwest corner that has two inactive aboveground storage tanks and unlabeled chemicals sitting against the barn. There are fertilizer tanks located at each of the water systems and one is leaking onto the soil. On the Mitchell Farm site, a debris dump located on the southeast corner contains discarded herbicide containers, trash, and motor oil. A small amount of motor oil has leaked onto the soil. There was also paint spilled onto the ground in the center of the Rankin Farm and Mitchell Farm sites' shared boundary.

There have been no known gas leaks, water leaks or herbicide spills on any of the private parcels. Herbicides and insecticides have been used on the property but are stored only on vehicles to spray (personal communication, Steve Riley, owner/operator of Riley Farms).

### 3.9.2 Analysis of Alternatives and Impacts on Hazardous and Solid Waste Materials

#### **Proposed Action**

Overall, there would be no expected impacts from hazardous materials and waste at either sites under the Proposed Action. There would be no direct impacts to hazardous and solid waste materials from the proposed land exchange because it is merely the transfer of land ownership. The proposed subsequent land use on the ARS Big Spring site, installation of a wellsite and associated flow pipelines, would produce waste, including hazardous and solid waste materials. Typical wastes associated with wellsite and flow line development includes but is not limited to produced water, fuels and lubricants, and trash from construction. However, best management practices would be implemented to reduce or eliminate

hazards associated with wastes in compliance with hazardous and solid materials laws and regulations, such as implementing a spill prevention control and countermeasure plan, and disposal of wastes at approved facilities. During construction activities, solid waste would be disposed in accordance with the Resource Conservation and Recovery Act, with third party oil and gas party storing solid waste in bins.

The proposed subsequent land use on the privately-owned sites would be a continuation of the current land use, agriculture. If the buildings on the Rankin Farm site are replaced or removed, the USDA ARS would remove hazardous materials found in the buildings, such as polychlorinated biphenyl found in transformers and light ballasts, asbestos, or mercury in temperature gauges, place them in appropriate containers, and label them for recycling or disposal at a licensed waste facility in accordance with the Resource Conservation and Recovery Act.

### **No Action**

The abandoned house on the Rankin Farm site was built in the 1950s and may contain toxic substances such as lead based paint and mercury-containing thermostats. It is unlikely these hazardous wastes would be released into the surrounding environment without being disturbed. Therefore, no impacts would be expected to occur under a No Action Alternative.

## **3.10 Cumulative Impacts**

As defined by NEPA regulations (40 CFR 1508.7), “Cumulative impacts result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”

### **Past and Present Actions**

Past human caused and natural events have had varying levels of impacts on the resources and values on the ARS Big Spring site and privately-owned sites. Past and present actions include clearing the land for agricultural fields, past agricultural research by the USDA ARS, irrigation systems and well development for agricultural crops, development of residential homes, and infrastructural development such as roads, utility lines, and other infrastructure.

### **Reasonably Foreseeable Future Actions**

Reasonably foreseeable future actions include proposed oil and gas pipelines and associated infrastructure development and commercial development within and outside the ARS Big Spring site and continued agricultural surrounding the privately-owned sites.

#### **3.10.1 Proposed Action**

##### ***Land Use***

The change from agriculture to oil and gas services on the ARS Big Spring site would not change the general land use pattern of mixed use in the area. The ARS Big Spring site is surrounded by commercial development, with oil and gas support services and vacant and semi-rural lands to the north. Land use would stay the same on the privately-owned sites, agriculture. The Proposed Action in combination with the past, present, and reasonably foreseeable future actions would have negligible contributions to adverse cumulative impacts.

##### ***Soils***

Best management practices would be implemented to reduce erosion during construction of the wellsite and flow lines and a building to house farming equipment and provide employee facilities. In addition, once installation of the flow lines is complete, the disturbed areas will be reseeded. The Proposed Action alternative would result in negligible to minor adverse impacts with implementation of soil erosion and

sediment control measures. In combination with past, present, and reasonably foreseeable future actions, the proposed action would have negligible contributions to adverse cumulative impacts.

### ***Prime Farmland***

The subsequent proposed oil and gas development would remove about 4 acres of land designated as prime farmland and temporarily disturb soils designated as prime farmland for construction of flow lines. The disturbed soils would be recontoured and seeded once construction is completed, thus adverse impacts would be negligible to prime farmland. The Proposed Action would have negligible contributions to cumulative adverse impacts.

### ***Water Resources***

The subsequent proposed oil and gas development on the ARS Big Spring site and continued agricultural use on the privately-owned sites would not be expected to increase the demand on water resources. In the context of current and reasonably foreseeable actions on the sites, the Proposed Action is not anticipated to incrementally cause adverse cumulative impacts on water resources in the area. The proposed oil and gas development would require 0.19 AF to install and up to 0.48 AF annually to operate the oil and gas wells, but the third-party oil and gas company would buy water from local commercial depots in the area (i.e., farmers) for development and operation of the oil and gas wells. The proposed oil and gas development would be expected to have no impacts to groundwater quantity because the development and annual water needs of the oil and gas wells would not require additional groundwater pumping from the Ogallala Aquifer and comprises a small amount of total groundwater usage. The TRC surface casing requirements and drilling oil and gas wells using freshwater would make impacts to groundwater quality highly unlikely. In addition, the pumper would check for leaks and that all equipment is working properly daily. The privately-owned sites already have active water wells and irrigation systems that would continue to be used for growing agricultural crops. Additionally, the crops would be similar with corn and cotton still being grown and the addition of peanuts and sorghum. The Proposed Action in combination with the past, present, and reasonably foreseeable future actions would not contribute to adverse cumulative impacts to water resources.

### ***Vegetation***

The removal of up to 4 acres of vegetation to build a wellsite and reseeding the flow line rights-of-way would have negligible impacts to populations or communities of native plants. The proposed building on the privately-owned sites would likely be built outside the agricultural fields and could occur where native and non-native grasses occur. However, the proposed building construction would be expected to negligibly impact native plant communities or populations with the primary vegetation type being agricultural fields. The Proposed Action in combination with the past, present, and reasonably foreseeable future actions would contribute negligibly to adverse cumulative impacts to vegetation resources.

### ***Wildlife***

The Proposed land exchange would not impact wildlife or their habitat, but the subsequent oil and gas development could temporarily displace wildlife within and near the work area. The installation of the wellsite could remove up to 4 acres of vegetation and temporarily remove vegetation along the flow line rights-of-way until regrowth occurs from reseeding. Impacts from oil and gas development would be negligible to wildlife and their habitat with impacts being temporary or small in size (up to 4 acres of permanent vegetation removal). The current agricultural use on the privately-owned sites would be continued as ARS would plant research crops. The proposed building construction for everyday operations on the privately-owned sites would be expected to have negligible impacts on wildlife and their habitat because construction would negligibly impact native vegetation communities or plants with agricultural fields dominating the sites. The Proposed Action in combination with the past, present, and reasonably foreseeable future actions would contribute negligibly to adverse cumulative impacts to wildlife and their habitats.

### ***Threatened and Endangered Species***

The ARS Big Spring site and privately-owned sites lack suitable habitat within or near them for the sharpnose shiner and smalleye shiner and would have no effect to any federal or state listed threatened and endangered species. Therefore, the proposed action would not contribute to cumulative impacts.

### ***Cultural Resources***

Cultural resources on the sites have been impacted by past livestock grazing, utility and infrastructure development, residential development, and past and present agricultural practices. Surface disturbance from development and associated infrastructure (e.g., access roads, waterlines), agricultural crops, and research crops could cause direct damage to cultural resources. Past livestock grazing on the ARS Big Spring site could cause displacement of cultural resources or increased erosion from removal of protective vegetation. The proposed subsequent oil and gas development would have no impacts to known cultural resources because both sites discovered were recommended as ineligible for listing on the NHRP. The privately-owned sites would continue to be used for agricultural crops and would not be expected to further impact cultural resources. The impacts would not likely be substantial in the foreseeable future because cultural resource surveys have been completed for all sites and eligible sites would be avoided by future development.

### ***Hazardous and Solid Waste Materials***

The Proposed Action would have no impacts on hazardous and solid waste materials, but the subsequent proposed oil and gas development would produce hazardous and solid wastes. However, best management practices would be implemented to reduce or eliminate hazards associated with wastes in compliance with hazardous and solid materials laws and regulations, such as implementing a spill prevention control and countermeasure plan, and disposal of wastes at approved facilities. The abandoned house on the Rankin Farm site has solid waste scattered inside and could contain hazardous materials, such as polychlorinated biphenyl transformers, asbestos, or lead based paint. If the house is replaced or removed, all hazardous materials would be disposed or recycled at licensed facilities in appropriate containers. The Proposed Action in combination with past, present, and reasonably foreseeable actions would contribute negligibly to adverse cumulative impacts.

### **3.10.2 No Action Alternative**

Under the No Action Alternative, the proposed land exchange would not occur and the current uses and conditions at the sites would continue. In combination with past present and reasonably foreseeable actions, the No Action Alternative would have no cumulative impacts.

## **4 Consultation and Coordination**

The Endangered Species Act of 1973 requires the consideration of impacts on federally listed species for all federally funded, permitted, or authorized projects. The USDA ARS requested a species list from the USFWS IPAC that identified threatened, endangered, proposed, and candidate species that may occur within the project area or may be affected by the proposed actions. The proposed actions will have no effect on federally listed species, thus, does not require further section 7 consultation or coordination with the USFWS (see Appendix A page 2 for more information).

Section 106 of the National Historic Preservation Act as amended in 1992 (16 USC 470 *et seq.*) requires the consideration of impacts on historic properties that are listed, or eligible to be listed, in the National Register of Historic Places. The land exchange and subsequent activities will comply with the American Indian Religious Freedom Act, NRHP, and other legislation pertaining to cultural resources. A copy of the EA will be sent to the Texas Historical Commission for review and comment.

The EA will also be available to interested parties and agencies for review and comment.

## **4.1 List of Contributors**

### USDA ARS

Laurence Chandler, Director, Plains Area Office

C. Brian Dean, Engineer, Plains Area Office

Shanna Henk, Area Safety and Health Manager, Plains Area Office

Alejandro Rooney, Research Director, Cropping Systems Research Laboratory

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### BRIC LLC

Timothy Goddard, Cultural Resources Manager

Stephanie Lee, NEPA Specialist

Randy Seeley, Wildlife Biologist

Lisa Sparks, Archeologist

Michael Tremble, Director of Operations and Environmental Scientist

## 5 References

### BRIC, LLC

2020a Phase I Environmental Assessment for Big Spring and Lubbock, TX Land Exchange Project: ARS Big Spring Site. BRIC, LLC, Albuquerque, NM.

2020b Biological Evaluation for Big Spring and Lubbock, TX Land Exchange Project. BRIC, LLC, Albuquerque, NM.

### Environmental Data Resources, Inc. (EDR)

2020 Radius Map Report. Order Number: 6217386, October 6, 2020.

### McCall and Associates

2019 Revised Submittal for Property Appraisal for Big Spring, TX. Report prepared for USDA-ARS Service Center, Big Spring, TX. McCall and Associates AIA Architects, San Antonio, TX.

### U.S. Department of Agriculture Natural Resources Conservation Service Soil Survey Staff

2020a Web Soil Survey: Howard County, Texas (TX 227). Available online from <http://websoilsurvey.nrcs.usda.gov/>.

2020b Web Soil Survey: Hale County, Texas (TX 189). Available online from <http://websoilsurvey.nrcs.usda.gov/>.

### Texas Water Development Board

2020a Major Aquifers: Ogallala Aquifer. Available online from <https://www.twdb.texas.gov/groundwater/aquifer/majors/ogallala.asp>.

2020b 2021 Regional Water Plan. Water Demand Projections by County for 2020 to 2070 in Acre-feet: Howard County. Available online from [https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand\\_county\\_search](https://www3.twdb.texas.gov/apps/reports/Projections/2022%20Reports/demand_county_search).

### Texas Natural Diversity Database (TXNDD)

2020 Element Occurrence Data Export. Wildlife Diversity Program of Texas Parks and Wildlife Department.

### U.S. Fish and Wildlife Service (USFWS)

2020 National Wetlands Inventory Data. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available online from <http://www.fws.gov/wetlands>.

## 6 Acronyms

AF	Acre-feet
APE	Area of Potential Effect
ARS	Agriculture Research Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EA	Environmental Assessment
EDR	Environmental Data Services
IPAC	Information for Planning and Conservation
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
ROW	Right-of-Way
TXNDD	Texas Natural Diversity Database
TXWDB	Texas Water Development Board
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

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## Appendix A. USFWS IPAC T&E Species List



### United States Department of the Interior



#### FISH AND WILDLIFE SERVICE

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<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

November 17, 2020

Consultation Code: 02ETAU00-2021-SLI-0279

Event Code: 02ETAU00-2021-E-00585

Project Name: USDA-ARS Big Spring and Lubbock, TX Land Exchange Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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 county 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.).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. 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. Also 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 federally listed as threatened

or endangered species and to determine whether projects may affect these 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.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

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 a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
- *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
- *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. 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

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php> ) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.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 Tracking Number 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

## 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:

### **Austin Ecological Services Field Office**

10711 Burnet Road, Suite 200  
Austin, TX 78758-4460  
(512) 490-0057

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

### **Arlington Ecological Services Field Office**

2005 Ne Green Oaks Blvd  
Suite 140  
Arlington, TX 76006-6247  
(817) 277-1100

## Project Summary

Consultation Code: 02ETAU00-2021-SLI-0279

Event Code: 02ETAU00-2021-E-00585

Project Name: USDA-ARS Big Spring and Lubbock, TX Land Exchange Project

Project Type: LAND - DISPOSAL / TRANSFER

Project Description: The U.S. Department of Agriculture (USDA), Agriculture Research Service (ARS), Plains Area Office is proposing a land exchange of ARS land in Big Spring, Howard County, TX with privately-owned land in Hale County, near Lubbock, TX . The ARS land in Big Spring, TX is approximately 103 acres and is associated with the Cropping Systems Research Laboratory in Lubbock, TX. The Cropping Systems Research Laboratory has been conducting research on the Big Spring site since 1915, with the research focused primarily on soil composition and moisture, wind erosion, crop cultivation, and limited livestock production. For the past several decades, research has been limited to wind erosion, soil, and plant stress studies associated with drought. One of the current primary research focuses of the Cropping Systems Research Laboratory is farm cultivation research as it involves modern irrigation and other farming practices. The land exchange would allow the ARS Cropping Systems Research Laboratory to meet their research needs and mission priorities for farm cultivation research as it pertains to modern irrigation and other farming practices.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.912552491837005N101.74900497418787W>



Environmental Assessment – Land Exchange of Federal and Private Lands  
Big Spring and Lubbock TX

11/17/2020

Event Code: 02ETAU00-2021-E-00585

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Counties: Hale, TX | Howard, TX

## Endangered Species Act Species

There is a total of 3 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. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, 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.

## Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>▪ Wind Energy Projects</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>▪ Wind Energy Projects</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>▪ Wind Energy Projects</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened

### **Critical habitats**

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



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Arlington Ecological Services Field Office  
2005 Ne Green Oaks Blvd  
Suite 140  
Arlington, TX 76006-6247

Phone: (817) 277-1100 Fax: (817) 277-1129

<http://www.fws.gov/southwest/es/arlingontexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

November 17, 2020

Consultation Code: 02ETAR00-2021-SLI-0390

Event Code: 02ETAR00-2021-E-00930

Project Name: USDA-ARS Big Spring and Lubbock, TX Land Exchange Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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, which may occur within the boundary of 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.).

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 section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

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 Federal actions 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.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. 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>

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.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy

Environmental Assessment – Land Exchange of Federal and Private Lands  
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guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

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 Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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This species list is provided by:

**Arlington Ecological Services Field Office**

2005 Ne Green Oaks Blvd  
Suite 140  
Arlington, TX 76006-6247  
(817) 277-1100

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

**Austin Ecological Services Field Office**

10711 Burnet Road, Suite 200  
Austin, TX 78758-4460  
(512) 490-0057

## Project Summary

Consultation Code: 02ETAR00-2021-SLI-0390

Event Code: 02ETAR00-2021-E-00930

Project Name: USDA-ARS Big Spring and Lubbock, TX Land Exchange Project

Project Type: LAND - DISPOSAL / TRANSFER

Project Description: The U.S. Department of Agriculture (USDA), Agriculture Research Service (ARS), Plains Area Office is proposing a land exchange of ARS land in Big Spring, Howard County, TX with privately-owned land in Hale County, near Lubbock, TX . The ARS land in Big Spring, TX is approximately 103 acres and is associated with the Cropping Systems Research Laboratory in Lubbock, TX. The Cropping Systems Research Laboratory has been conducting research on the Big Spring site since 1915, with the research focused primarily on soil composition and moisture, wind erosion, crop cultivation, and limited livestock production. For the past several decades, research has been limited to wind erosion, soil, and plant stress studies associated with drought. One of the current primary research focuses of the Cropping Systems Research Laboratory is farm cultivation research as it involves modern irrigation and other farming practices. The land exchange would allow the ARS Cropping Systems Research Laboratory to meet their research needs and mission priorities for farm cultivation research as it pertains to modern irrigation and other farming practices.

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Environmental Assessment – Land Exchange of Federal and Private Lands  
Big Spring and Lubbock TX

11/17/2020

Event Code: 02ETAR00-2021-E-00930

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Counties: Hale, TX | Howard, TX

11/17/2020

Event Code: 02ETAR00-2021-E-00930

## Endangered Species Act Species

There is a total of 5 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. Note that 5 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, 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.

## Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>▪ Wind Energy Projects</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>▪ Wind Energy Projects</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>▪ Wind Energy Projects</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened

## Fishes

NAME	STATUS
<p>Sharpnose Shiner <i>Notropis oxyrhynchus</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>All reservoir projects; in-channel projects such as interbasin transfers, water diversions, small impoundments, etc. that may reduce flows of major tributaries eventually flowing into occupied habitat; commercial/industrial well field projects.</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/6492">https://ecos.fws.gov/ecp/species/6492</a></p>	Endangered
<p>Smalleye Shiner <i>Notropis buccula</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"><li>All reservoir projects; in-channel projects such as interbasin transfers, water diversions, small impoundments, etc. that may reduce flows of major tributaries eventually flowing into occupied habitat; commercial/industrial well field projects.</li></ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1774">https://ecos.fws.gov/ecp/species/1774</a></p>	Endangered

## Critical habitats

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