

# Appendices

# Appendix A

## Project Location Maps



Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

Legend  
Project Area



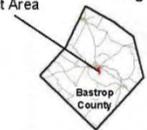


Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

Legend  
■ Project Area



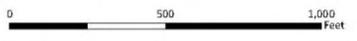
Project Area Aerial  
Page A2

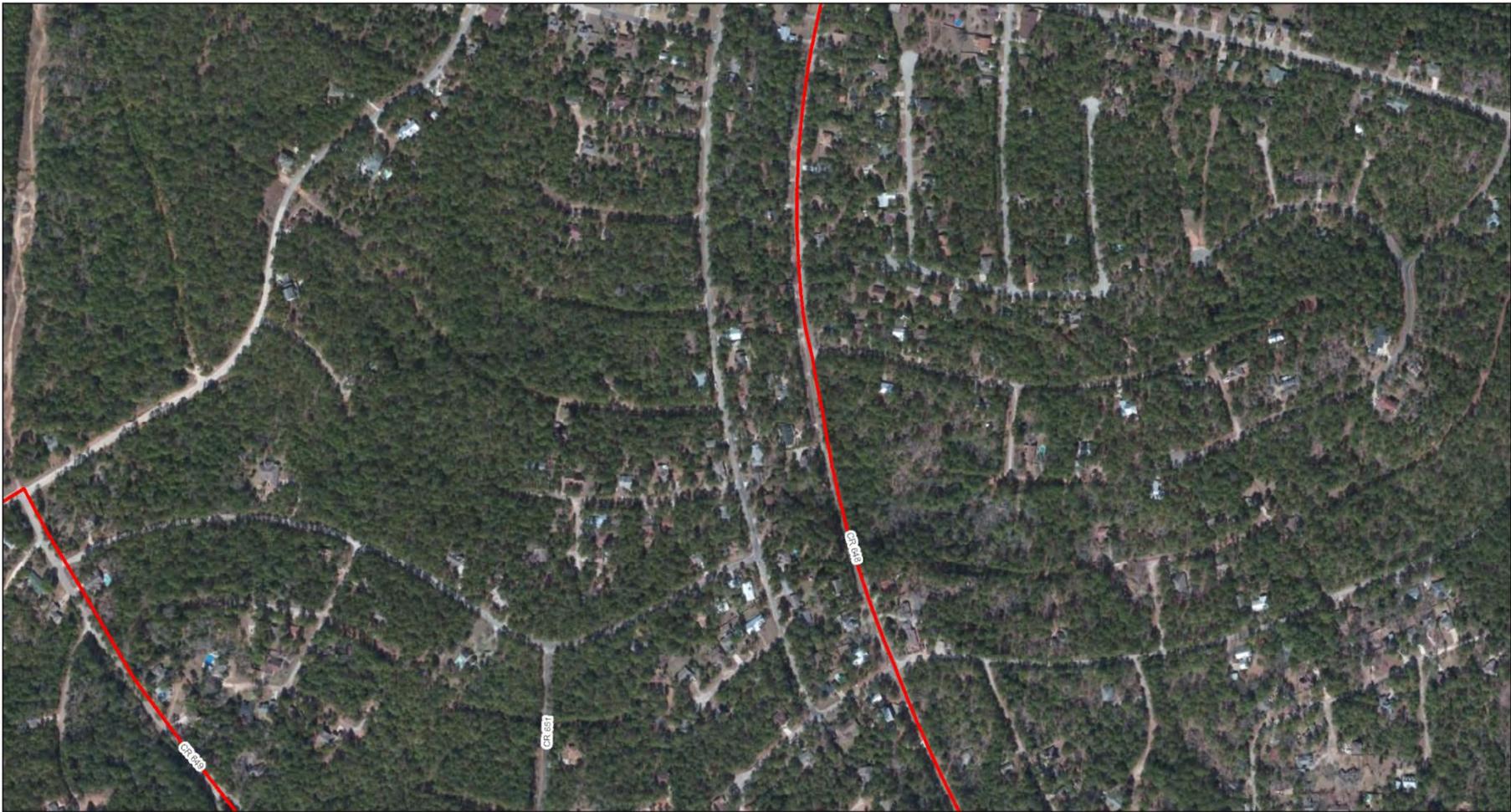




Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

Legend  
■ Project Area





Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

Legend  
■ Project Area

0 500 1,000 Feet

N  
W E  
S

Project Area Aerial  
Page B2

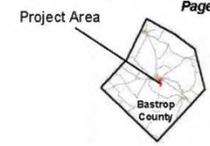
Bastrop County



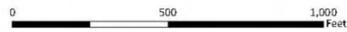
Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX



Project Area Aerial  
Page C1



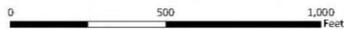
Legend  
Project Area

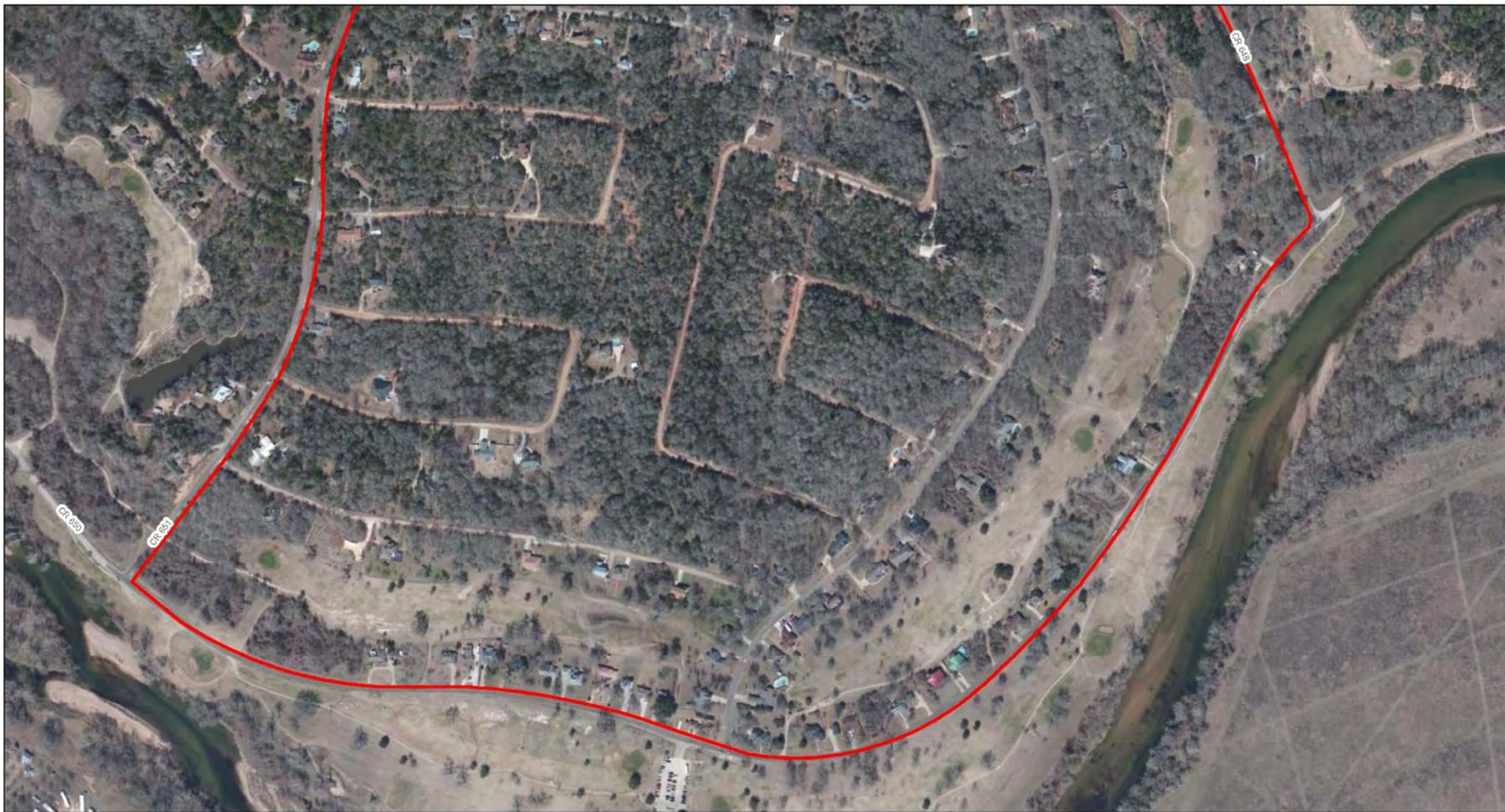




Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

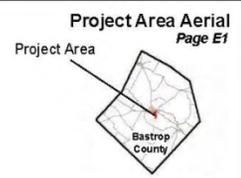
Legend  
Project Area





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Bastrop County, TX

Legend  
Project Area



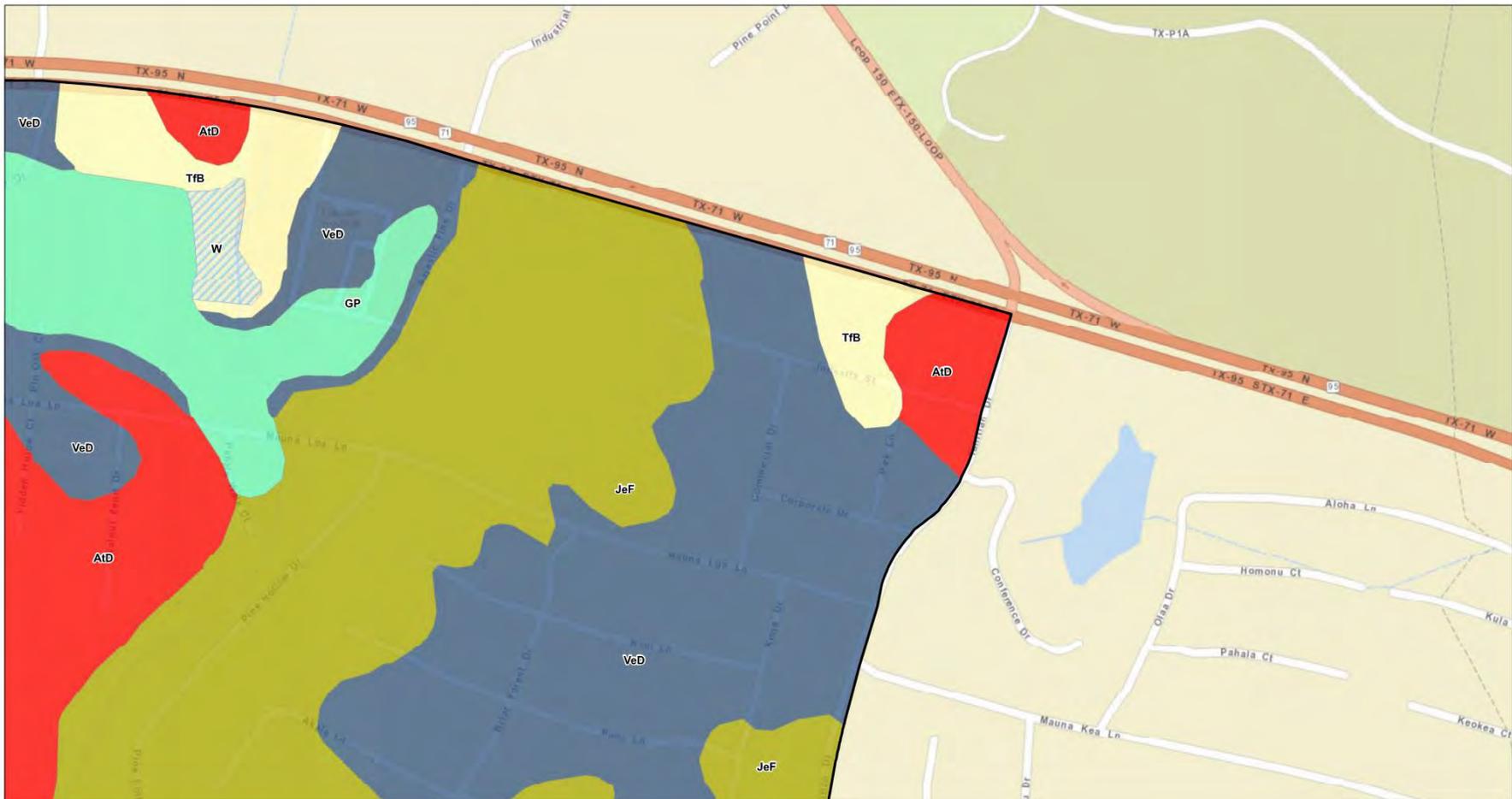
**Appendix B**

**Project Area Soils Maps**

**Soil Survey Unit Codes (legend for following map book sheets)**

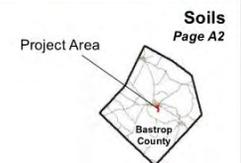
<b>Code</b>	<b>Description</b>	<b>Code</b>	<b>Description</b>
Afc	Edge fine sandy loam, 1 to 5 percent slopes	DeC	Robco loamy fine sand, 1 to 5 percent slopes
AfC2	Edge fine sandy loam, 2 to 5 percent slopes	FeF2	Ferris clay, 5 to 20 percent slopes
AfE2	Edge fine sandy loam, 5 to 12 percent slopes	JeF	Jedd gravelly fine sandy loam, 5 to 20 percent slopes
AtD	Edge gravelly fine sandy loam, 3 to 8 percent slopes	Ls	Gad fine sand, 0 to 1 percent slopes
BaC2	Bastrop fine sandy loam, 3 to 5 percent slopes	PaE	Padina fine sand, 1 to 12 percent slopes
Bo	Bosque loam, 0 to 1 percent slopes, occasionally flooded	Sa	Sayers fine sandy loam, 0 to 1 percent slopes
CsC2	Crockett fine sandy loam, 2 to 5 percent slopes	SkC	Silstid loamy fine sand, 1 to 5 percent slopes
CsD3	Crockett fine sandy loam, 3 to 8 percent slopes	TfB	Tabor fine sandy loam, 1 to 3 percent slopes
CsE2	Crockett fine sandy loam, 5 to 10 percent slopes	VeD	Vernia very gravelly loamy sand, 1 to 8 percent slopes

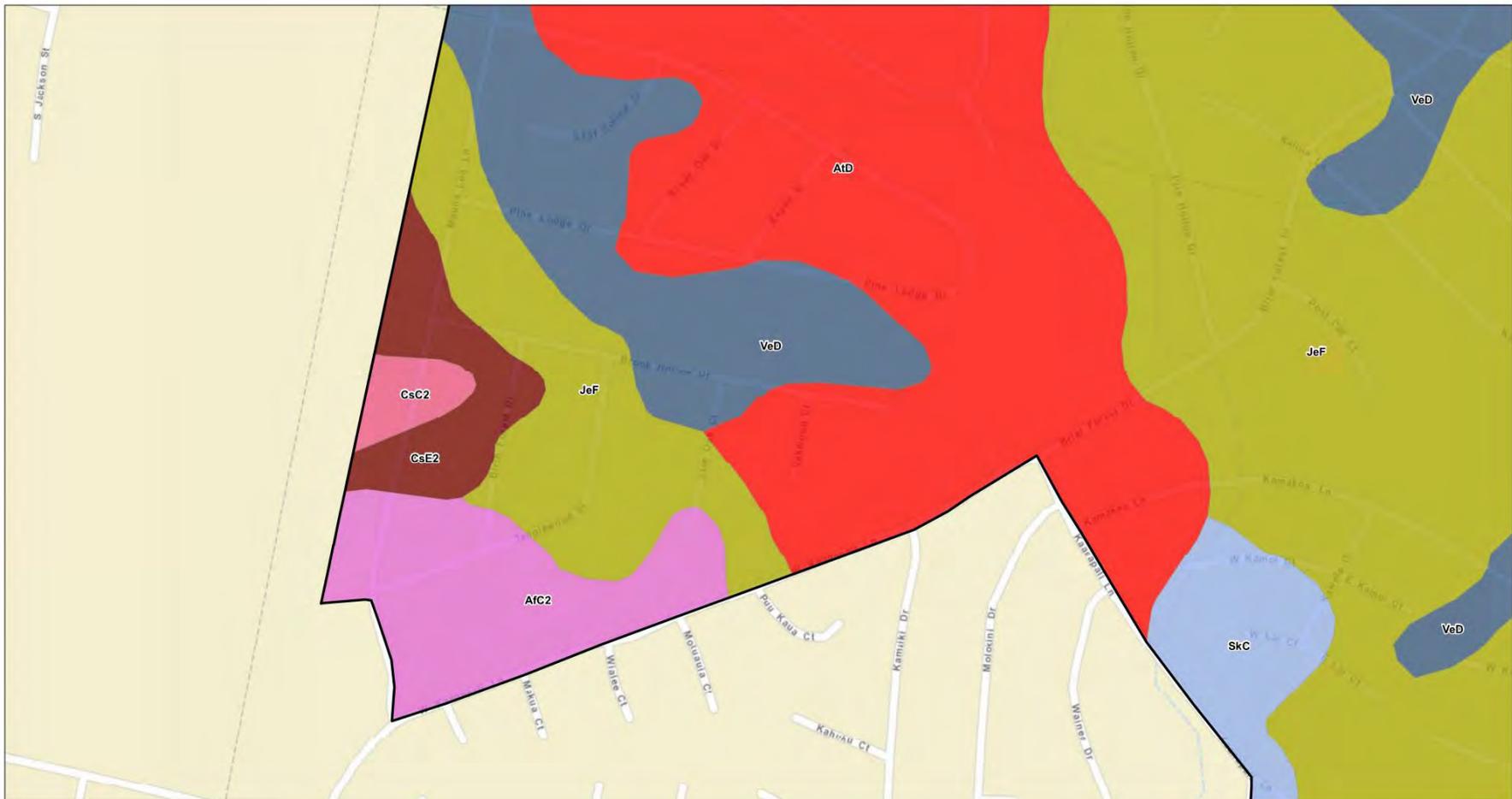




Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

- Legend
- Project Area
  - Soil Survey
    - AFe2
    - Bo
    - CsE2
    - GP
    - PaE
    - T1B
    - A1C
    - A1D
    - CsC2
    - DeC
    - JeF
    - Sa
    - VeD
    - A1C2
    - BaC2
    - CsD3
    - FeF2
    - Ls
    - SKC
    - W





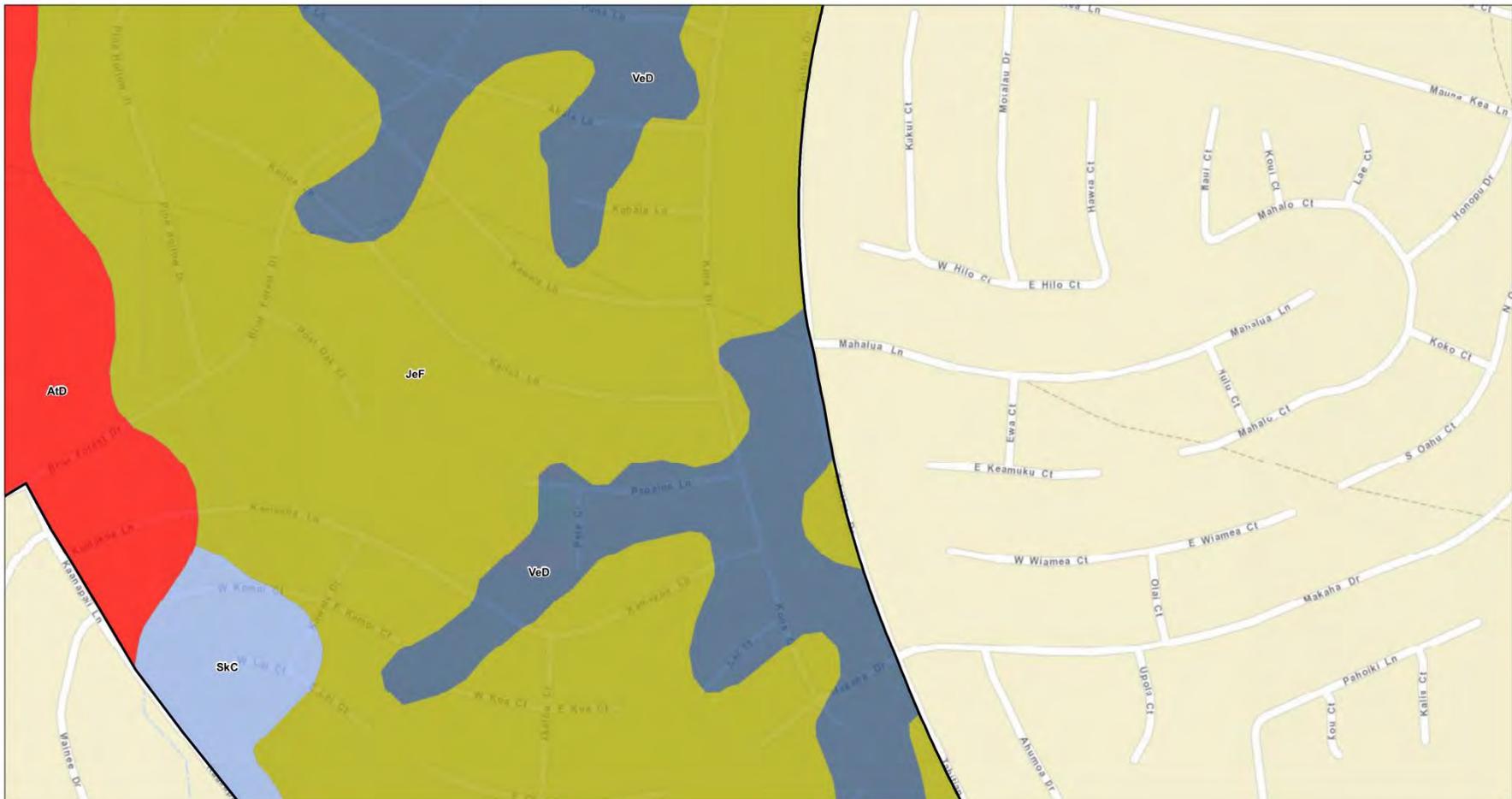
**Lost Pines South Hazardous Fuels Reduction**  
 Bastrop County, TX

**Legend**

Project Area	Soil Survey	AfE2	Bo	CsE2	GP	PaE	TfB	
		AfC	AID	CsC2	DeC	JeF	Sa	VeD
		AfC2	BaC2	CsD3	FeF2	Ls	SKC	W

  
 0 500 1,000 Feet

**Soils**  
 Page B1  

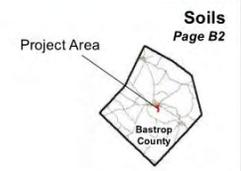
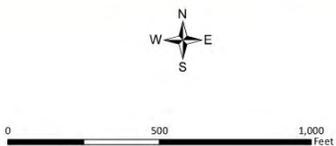



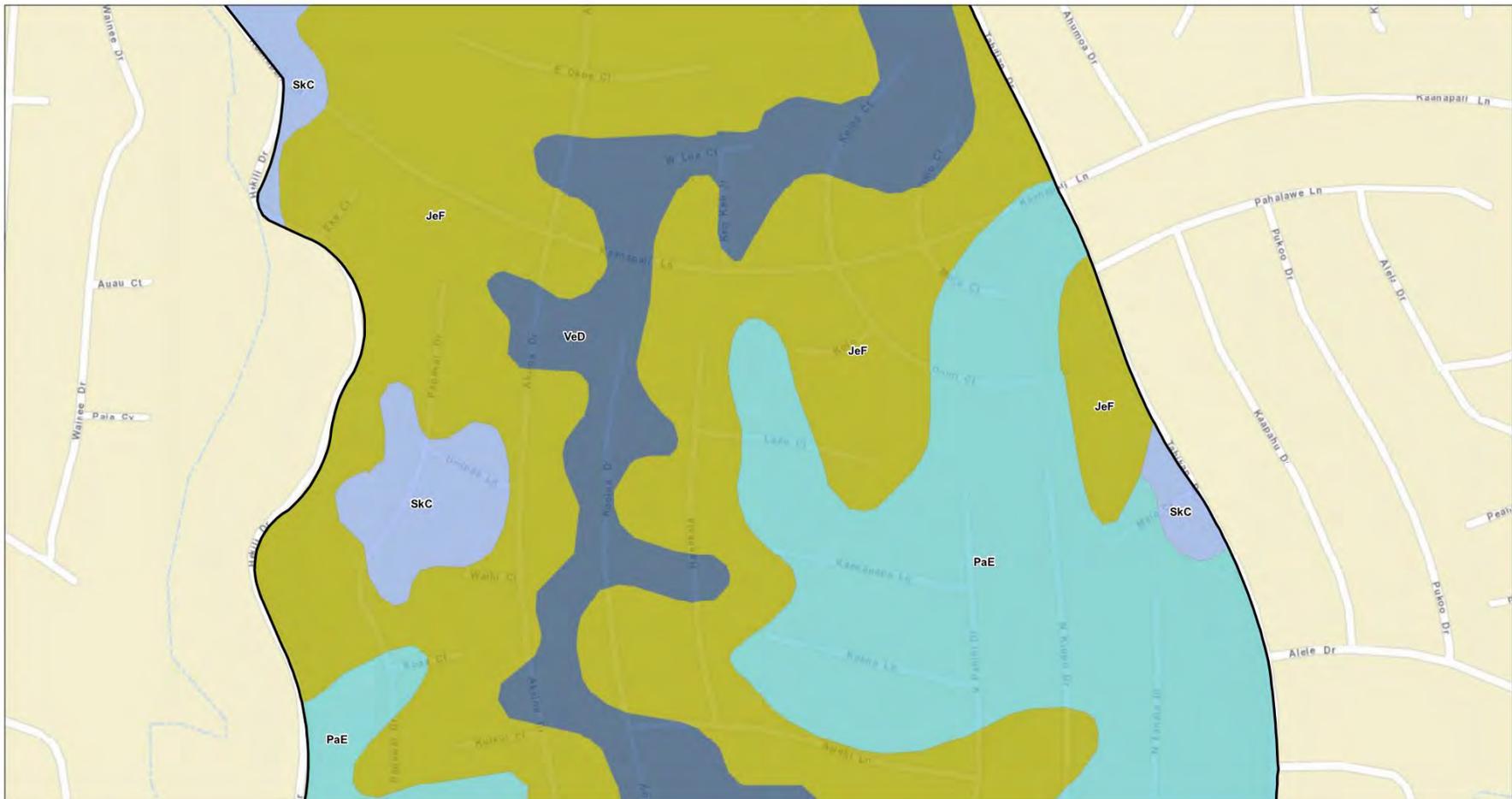
**Lost Pines South Hazardous Fuels Reduction**  
 Bastrop County, TX

**Legend**

Project Area

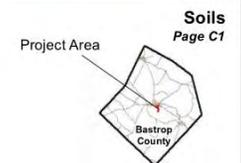
<b>Soil Survey</b>	<span style="color: blue;">■</span> AFe2	<span style="color: yellow;">■</span> Bo	<span style="color: red;">■</span> CsE2	<span style="color: green;">■</span> GP	<span style="color: cyan;">■</span> PaE	<span style="color: lightyellow;">■</span> TFB
	<span style="color: red;">■</span> AID	<span style="color: red;">■</span> CsC2	<span style="color: red;">■</span> DeC	<span style="color: yellow-green;">■</span> JeF	<span style="color: purple;">■</span> Sa	<span style="color: blue;">■</span> VeD
	<span style="color: pink;">■</span> AIC2	<span style="color: green;">■</span> BaC2	<span style="color: pink;">■</span> CsD3	<span style="color: pink;">■</span> FeF2	<span style="color: yellow;">■</span> Ls	<span style="color: lightblue;">■</span> SKC
				<span style="color: lightblue;">■</span> W		

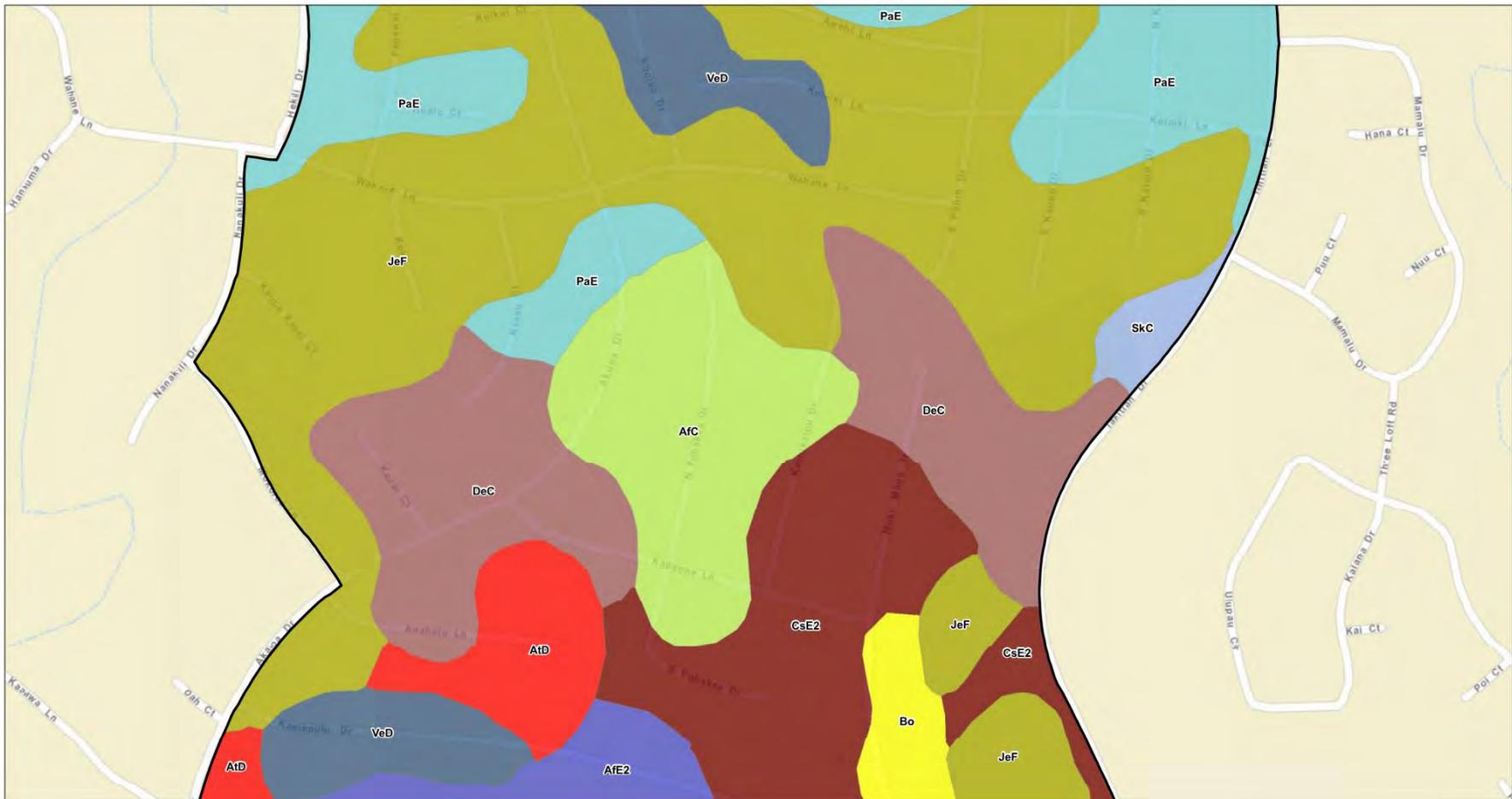




Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

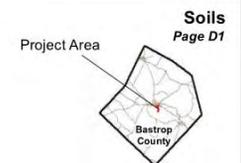
- Legend**
- Project Area
  - Soil Survey
    - AFe2
    - Bo
    - CsE2
    - GP
    - PaE
    - TfB
    - A1C
    - A1D
    - CsC2
    - DeC
    - JeF
    - Sa
    - VeD
    - A1C2
    - BaC2
    - CsD3
    - FeF2
    - Ls
    - SKC
    - W





Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

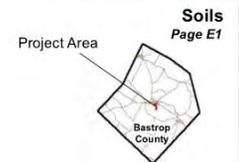
- Legend
- Project Area
  - Soil Survey
    - Afe2
    - Bo
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    - CsC2
    - DeC
    - JeF
    - Sa
    - VeD
    - Afc2
    - BaC2
    - CsD3
    - FeF2
    - Ls
    - SKC
    - W





Lost Pines South Hazardous Fuels Reduction  
Bastrop County, TX

- Legend
- |              |             |      |      |      |      |     |     |     |
|--------------|-------------|------|------|------|------|-----|-----|-----|
| Project Area | Soil Survey | AFe2 | Bo   | CsE2 | GP   | PaE | TfB |     |
|              |             | AfC  | AID  | CsC2 | DeC  | JeF | Sa  | VeD |
|              |             | AfC2 | BaC2 | CsD3 | FeF2 | Ls  | SKC | W   |



## **Appendix C**

### **Water Resources Data**

C-1. Wild and Scenic Rivers Map

C-2. Sole Source Aquifer Map

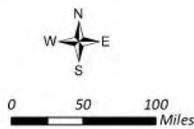
C-3. FEMA Federal Insurance Rate Maps



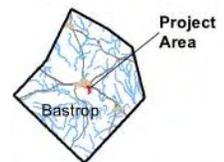
**Lost Pines South  
Fuels Reduction  
Bastrop County**

**Legend**

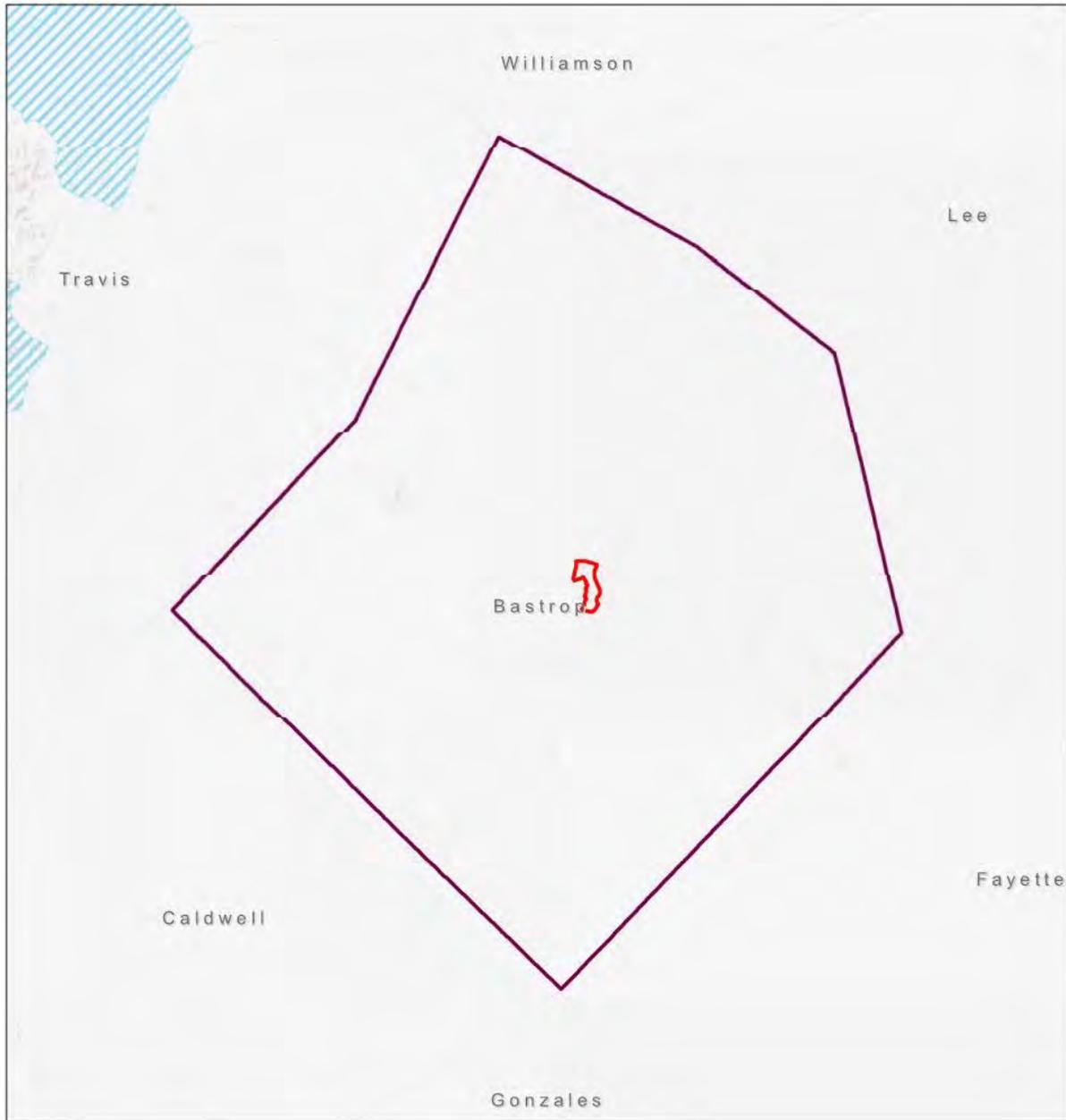
- Designated River Segment
- Nondesignated River Segment
- Bastrop County



**Designated Wild and Scenic  
Rivers of Texas**



Data Sources: NPS, TNIRIS  
Service Layer Credits: Sources: Esri, USGS, NOAA

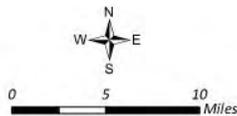


**Lost Pines South  
Fuels Reduction**

Bastrop County

**Legend**

-  Project Area
-  Area of Interest
-  Sole Source Aquifer



**Sole Source Aquifers**



Data Sources: EPA, TNRIS  
Service Layer Credits: Sources: Esri, USGS, NOAA



**Appendix D**  
**Agency Coordination Letters**



**FEMA**

October 15, 2014

Mr. Mark Wolfe  
State Historic Preservation Officer  
Texas Historical Commission  
P.O. Box 12276  
Austin, TX 78711

RE: Section 106 Review, 876 acres South Lost Pines Hazardous Fuels Reduction, Bastrop County, Texas; HMGP-DR-1999-TX Project #31

Dear Mr. Wolfe,

Bastrop County (Applicant) is requesting Hazard Mitigation Grant Program (HMGP) funding from the Federal Emergency Management Agency (FEMA) for wildlife mitigation activities in the South Lost Pines area in north-central Bastrop County. FEMA has determined that this project constitutes an undertaking and is initiating consultation under Section 106 of the National Historic Preservation Act.

The Applicant contacted the State Historic Preservation Office (SHPO) on July 19, 2012 regarding this project and your office replied by letter on July 26, 2012. FEMA would like to re-initiate Section 106 consultation for this project because we now have additional information on the undertaking as described below.

The Applicant proposes to lower the occurrence of heavy under- and mid-story tree stands in the South Lost Pines area to reduce the intensity of surface fires and lower the probability of fires transitioning into the crowns of the stands. This will be accomplished by using a combination of forestry type mowers, chainsaws, and chippers to reduce fuel concentrations that are more than 30 feet from a structure, and by creating shaded fuel breaks along large areas of continuous fuels adjacent to structures. The fuel reduction work includes the removal of encroaching brush species and ladder fuels (yaupon, holly, and red cedar); removal of dead vegetative materials such as branches, standing loblolly pine, and debris. No root balls or stumps will be removed; stumps would be ground down to ground level and would not be mechanically excavated or pushed. Hardwoods and pines that are 6 inches in diameter at breast height and larger will not be removed but may be trimmed; those 6 inches and smaller in diameter may be removed. The canopy height of larger and taller trees including hardwoods and pines will be raised 5-7 feet above ground by removing the lower limbs. Vegetative material will be ground and mulch will be spread on site.

The Area of Potential Effects (APE) is described as: Beginning at the intersection of State Highway 71 and Tahitian Drive in Bastrop County, Texas, then South to the intersection of Tahitian Drive and Riverside Drive, then West to Akaloa Dr., then North to Mokolea Ln., then NW on Kanakuli, then left on Wahane to Heleakali Dr. Then right on Lamaloa to Kamaiki. North on Kamaiki to Briar Forest Ln. NE on Briar Forest Ln. to Mauna Loa, then left to Majestic Pine Dr. Then east from Majestic Pine Dr along SH 71 to Tahitian Dr., the place of beginning. (See also attached map.)

This APE as noted above and as shown on the attached map depicts a total land mass of approximately 876 acres. Not every acre or parcel will be treated. There will be no fuel reduction activities performed in the following locations within the APE: 1) within 30 feet of a structure; 2) in the 100 year floodplain; or 3) on private property without a valid consent and right of entry given by the property owner.

FEMA has retained CDM Smith to prepare an environmental assessment under NEPA for this undertaking. A CDM Smith archaeologist (RPA) has reviewed the undertaking. A cultural records file search of the Texas Archaeological and Historic Site Atlas was conducted for known historical sites. According to the Atlas there are no National Register of Historic Places (NRHP) properties or districts within the immediate vicinity of the APE. Bastrop State Park is the closest NHRP property or district. It located directly across SR 71 from the APE.

According to the Atlas, there are two (2) previously recorded archaeological sites within the APE (41BP312 and 41BP640). Both are lithic scatters from an unknown prehistoric cultural group. Site 41BP640 has been determined as ineligible for the NRHP. The NRHP eligibility for site 41BP312 has not been determined.

In order to minimize ground disturbance near site 41BP312, Bastrop County will hand cut the following parcels that fall in our near the site boundary: R38485; R38533; R38541; R38549; R38557; R22265; R22273; R22281; R22289; R22297; R22305; R22313; R24386; R24394; R24402; R24410; R24418; R24426; R24434; R24450; R24458; R24466; R24474; R24482; R24490; R24498; R24506; R24514; R24522; and R24530 (see enclosed map). Only man-powered equipment such as chainsaws, wheelbarrows, etc. will be used to cut and remove brush from these parcels. Wheeled equipment and vehicles will access these parcels from Palikea Circle and Moku Manu Drive. The restrictions at these parcels will be a requirement of the FEMA grant funding.

The County does not plan to conduct any fuels reduction on parcel R35749, which is immediately adjacent to site 41BP640 (see enclosed map). The other parcels immediately adjacent to this site and to the west of Akaloa Drive are outside of the proposed project area and APE and also will not be cut. Therefore, there will be no ground disturbance in close proximity to site 41BP640.

In addition, the Applicant will be required to adhere to the following requirement as a condition of the FEMA grant:

“In the event that archaeological deposits, including any Native American pottery, stone tools, bones, funerary objects, or human remains are uncovered, the project must be halted immediately in the vicinity of the discovery, and all reasonable measures will be taken to avoid or minimize harm to the finds. The Applicant must secure all archaeological findings and restrict access to this sensitive area. The Applicant must inform TXDPS immediately. TXDPS will notify FEMA at the earliest practicable time, but not later than 24 hours. FEMA will then consult with the State Historic Preservation Office (SHPO). Work in sensitive areas must not resume until consultation is completed and until FEMA determines that appropriate measures have been taken to ensure compliance with the National Historic Preservation Act (NHPA) and its implementing regulations.”

FEMA requests concurrence with the determination that the two (2) historic resources will not be affected by this undertaking. Your prompt review of the project is greatly appreciated. Should you need information please contact Dorothy Weir, FEMA EHP, at (940)383-7250.

Sincerely,



Kevin Jaynes  
Regional Environmental Officer  
Region 6

**Enclosures**

Original SHPO response dated July 26, 2012  
Map of APE  
Texas Atlas Map of National Register Listed Properties  
Texas Atlas Map of Archaeological Sites  
Parcel Map for Site 41BP312  
Parcel Map for Site 41BP640

TEXAS HISTORICAL COMMISSION

*real places telling real stories*

July 26, 2012

Mike Fisher  
Bastrop County, Emergency Management Coordinator  
804 Pecan Street  
Bastrop, Texas 78602

Re: Project review under Section 106 of the National Historic Preservation Act of 1966 and the Antiquities Code of Texas  
Hazardous Fuels Reduction on 1,435 Acres on Privately Owned Forest Land within Bastrop County, Texas.

Dear Mr. Fisher:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed federal undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission. As the state agency responsible for administering the Antiquities Code of Texas, these comments also provide recommendations on compliance with state antiquities laws and regulations.

The review staff, led by Jeff Durst, has examined our records. According to our maps, the proposed location of the hazardous fuels reduction project contains 7 previously recorded archeological sites. Our office requests that a professional archeologist be retained to identify the locations of these 7 archeological sites on the ground and to monitor the under-and-mid-story clearing activity that takes place on these sites.

The monitoring work should meet the minimum archeological standards posted online at [www.thc.state.tx.us](http://www.thc.state.tx.us). A report of the monitoring activity should be produced in conformance with the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation, and submitted to this office for review.

Thank you for your cooperation in this federal and state review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Jeff Durst at 512/463-8884.**

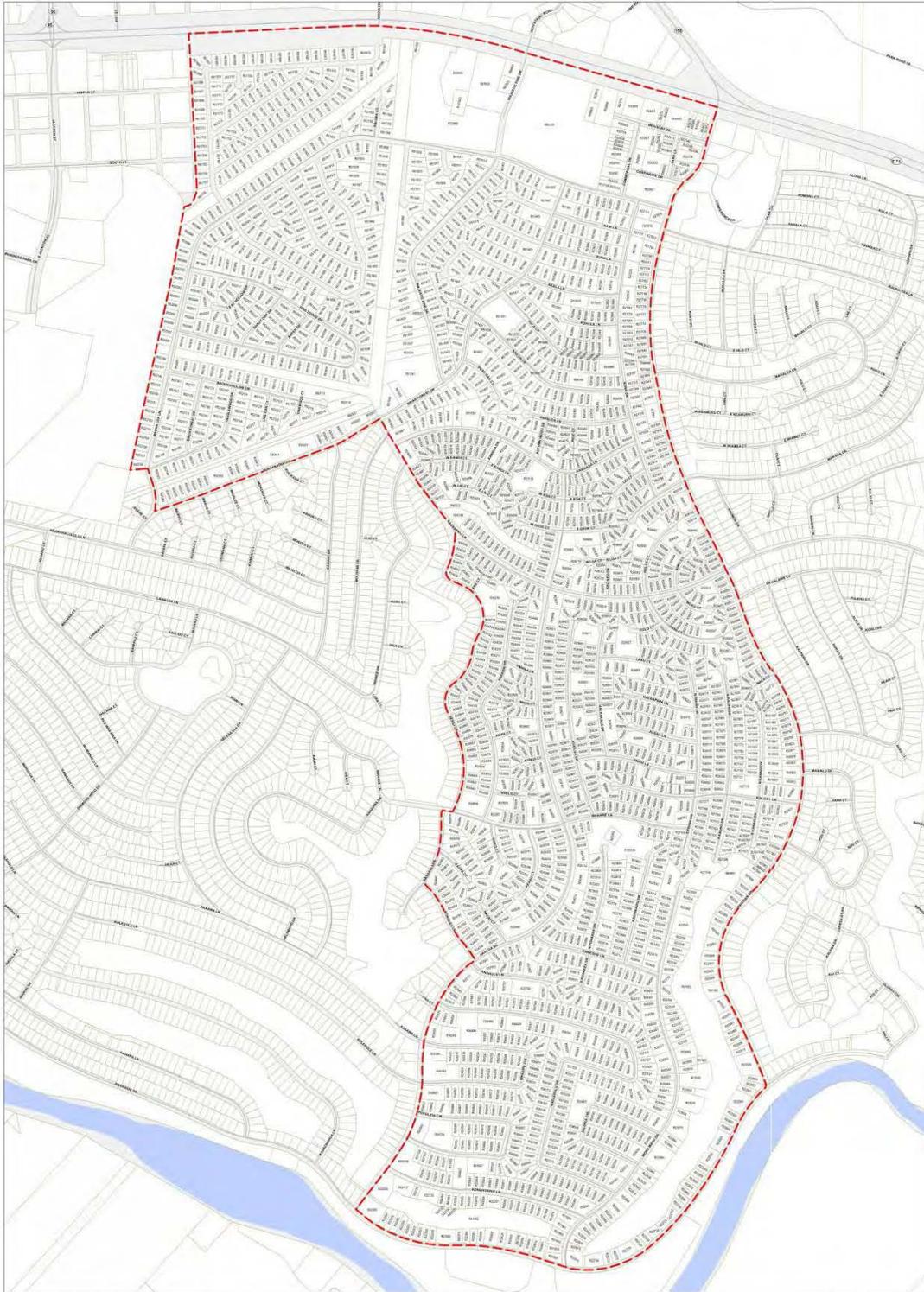
Sincerely,

*Patricia Mercado-Allinger*

for

Mark Wolfe, State Historic Preservation Officer  
MW/jjd





**BASTROP COUNTY  
FUEL  
REDUCTION  
SOUTH AREA**



0 250 500 1,000  
Feet

**Legend**

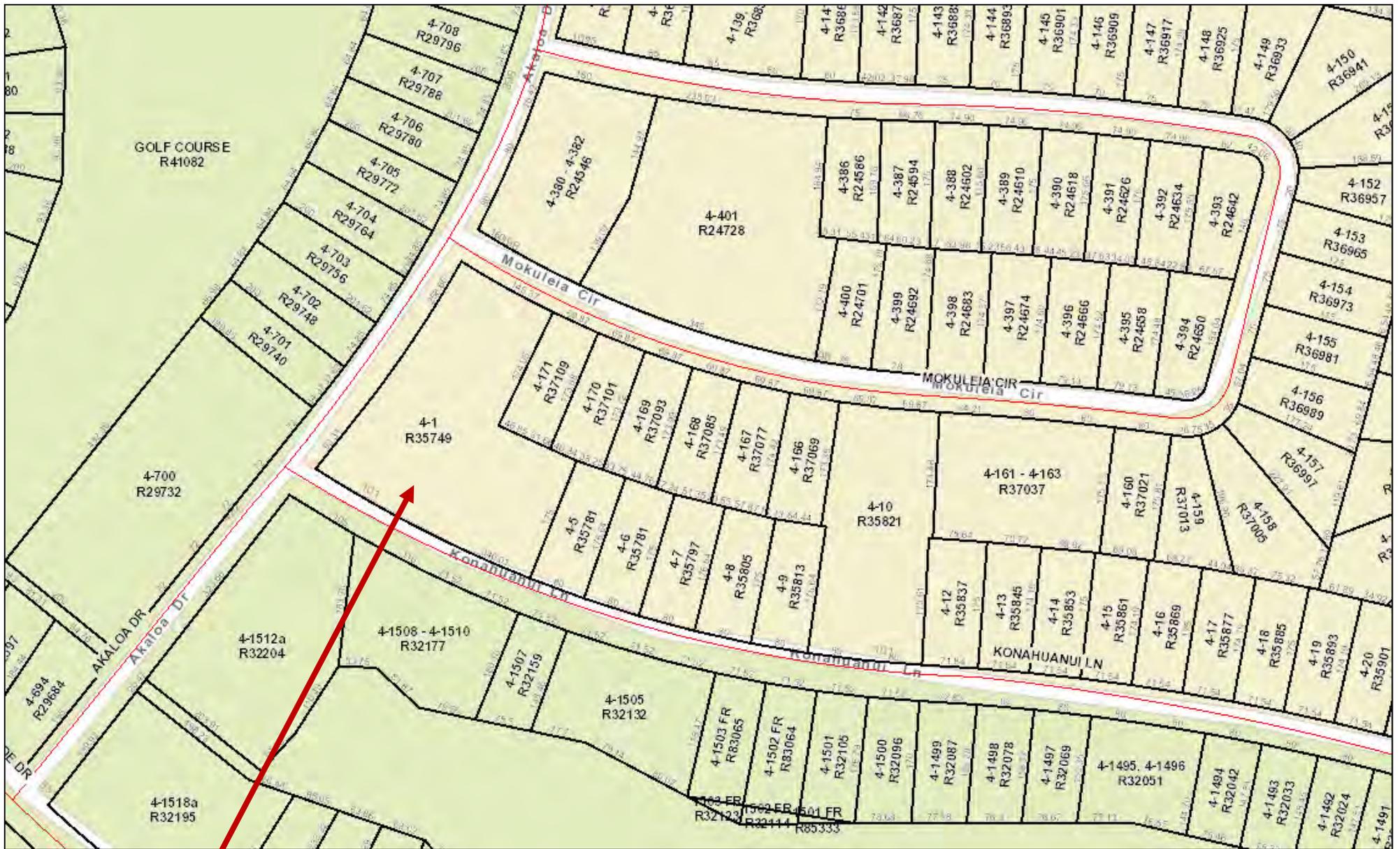
	Project Area		Roadways
	Land Parcel		Colorado River

Map Produced: 08/12/2014  
Bastrop County provides this map "as is" and assumes no liability for its completeness or accuracy. Information shown on this map is derived from public records that are constantly undergoing change and do not replace a site survey. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.





Parcel Map for Site 41BP312



Parcel Map for Site 41BP640

RECEIVED  
FRC MAIL CENTER  
FEMA REGION 6

2014 NOV -3 P 4: 04

U.S. Department of Homeland Security  
Federal Emergency Management Agency  
800 North Loop 288  
Denton, Texas, 76209



FEMA

RECEIVED

OCT 20 2014

Texas Historical Commission

October 15, 2014

Mr. Mark Wolfe  
State Historic Preservation Officer  
Texas Historical Commission  
P.O. Box 12276  
Austin, TX 78711

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Sincerely,



Kevin Jaynes  
Regional Environmental Officer  
Region 6

**Enclosures**

Original SHPO response dated July 26, 2012  
Man of APE  
Texas Atlas Map of National Register Listed Properties  
Texas Atlas Map of Archaeological Sites  
Parcel Map for Site 41BP312  
Parcel Map for Site 41BP640

<b>CONCUR</b>	
by	
for	Mark Wolfe
	State Historic Preservation Officer
Date	10/30/14
Track#	



**FEMA**

October 15, 2014

Mr. Jimmy Arterberry, Tribal Historic Preservation Officer  
Comanche Nation  
P.O. Box 908  
Lawton, OK 73502

Re: **Section 106 Review Consultation, HMGP-DR-1999-TX**

**Applicant: Bastrop County, Texas**

**Undertaking: Project #31: South Lost Pines Hazardous Fuels Reduction**

**Location: South Lost Pines Area**

**North-central Bastrop County, Texas**

**Determination: No Historic Properties Affected**

Dear Mr. Arterberry:

Bastrop County (Applicant) is requesting Hazard Mitigation Grant Program (HMGP) funding from the Federal Emergency Management Agency (FEMA) for wildlife mitigation activities in the South Lost Pines area in north-central Bastrop County. FEMA has determined that this project constitutes an undertaking and is initiating consultation under Section 106 of the National Historic Preservation Act.

The Applicant contacted the State Historic Preservation Office (SHPO) on July 19, 2012 regarding this project and your office replied by letter on July 26, 2012. FEMA would like to re-initiate Section 106 consultation for this project because we now have additional information on the undertaking as described below.

The Applicant proposes to lower the occurrence of heavy under- and mid-story tree stands in the South Lost Pines area to reduce the intensity of surface fires and lower the probability of fires transitioning into the crowns of the stands. This will be accomplished by using a combination of forestry type mowers, chainsaws, and chippers to reduce fuel concentrations that are more than 30 feet from a structure, and by creating shaded fuel breaks along large areas of continuous fuels adjacent to structures. The fuel reduction work includes the removal of encroaching brush species and ladder fuels (yaupon, holly, and red cedar); removal of dead vegetative materials such as branches, standing loblolly pine, and debris. No root balls or stumps will be removed; stumps would be ground down to ground level and would not be mechanically excavated or pushed. Hardwoods and pines that are 6 inches in diameter at breast height and larger will not be removed but may be trimmed; those 6 inches and smaller in diameter may be removed. The canopy height of larger and taller trees including hardwoods and pines will be raised 5-7 feet above ground by removing the lower limbs. Vegetative material will be ground and mulch will be spread on site.

The Area of Potential Effects (APE) is described as: Beginning at the intersection of State Highway 71 and Tahitian Drive in Bastrop County, Texas, then South to the intersection of Tahitian Drive and Riverside Drive, then West to Akaloa Dr., then North to Mokolea Ln., then NW on Kanakuli, then left on Wahane to Heleakali Dr. Then right on Lamaloa to Kamaiki. North on Kamaiki to Briar Forest Ln. NE on Briar Forest Ln. to Mauna Loa then left to Majestic Pine Dr. Then east from Majestic Pine Dr. along SH 71 to Tahitian Dr., the place of beginning. (See also attached map.)

This APE as noted above and as shown on the attached map depicts a total land mass of approximately 876 acres. Not every acre or parcel will be treated. There will be no fuel reduction activities performed in the following locations within the APE: 1) within 30 feet of a structure; 2) in the 100 year floodplain; or 3) on private property without a valid consent and right of entry given by the property owner.

FEMA has retained CDM Smith to prepare an environmental assessment under NEPA for this undertaking. A CDM Smith archaeologist (RPA) has reviewed the undertaking. A cultural records file search of the Texas Archaeological and Historic Site Atlas was conducted for known historical sites. According to the Atlas there are no National Register of Historic Places (NRHP) properties or districts within the immediate vicinity of the APE. Bastrop State Park is the closest NHRP property or district. It located directly across SR 71 from the APE.

According to the Atlas, there are two (2) previously recorded archaeological sites within the APE (41BP312 and 41BP640). Both are lithic scatters from an unknown prehistoric cultural group. Site 41BP640 has been determined as ineligible for the NRHP. The NRHP eligibility for site 41BP312 has not been determined.

In order to minimize ground disturbance near site 41BP312, Bastrop County will hand cut the following parcels that fall in our near the site boundary: R38485; R38533; R38541; R38549; R38557; R22265; R22273; R22281; R22289; R22297; R22305; R22313; R24386; R24394; R24402; R24410; R24418; R24426; R24434; R24450; R24458; R24466; R24474; R24482; R24490; R24498; R24506; R24514; R24522; and R24530 (see enclosed map). Only man-powered equipment such as chainsaws, wheelbarrows, etc. will be used to cut and remove brush from these parcels. Wheeled equipment and vehicles will access these parcels from Palikea Circle and Moku Manu Drive. The restrictions at these parcels will be a requirement of the FEMA grant funding.

The County does not plan to conduct any fuels reduction on parcel R35749, which is immediately adjacent to site 41BP640 (see enclosed map). The other parcels immediately adjacent to this site and to the west of Akaloa Drive are outside of the proposed project area and APE and also will not be cut. Therefore, there will be no ground disturbance in close proximity to site 41BP640.

In addition, the Applicant will be required to adhere to the following requirement as a condition of the FEMA grant:

*"In the event that archaeological deposits, including any Native American pottery, stone tools, bones, funerary objects, or human remains are uncovered, the project must be halted immediately in the vicinity of the discovery, and all reasonable measures will be taken to avoid or minimize harm to the finds. The Applicant must*

*secure all archaeological findings and restrict access to this sensitive area. The Applicant must inform TXDPS immediately. TXDPS will notify FEMA at the earliest practicable time, but not later than 24 hours. FEMA will then consult with the State Historic Preservation Office (SHPO). Work in sensitive areas must not resume until consultation is completed and until FEMA determines that appropriate measures have been taken to ensure compliance with the National Historic Preservation Act (NHPA) and its implementing regulations."*

FEMA requests concurrence with the determination that the two (2) historic resources will not be affected by this undertaking. Your prompt review of the project is greatly appreciated. Should you need information please contact Dorothy Weir, Environmental Specialist, at [Dorothy.weir@fema.dhs.gov](mailto:Dorothy.weir@fema.dhs.gov) or by phone at (940)383-7250 or Hector Abreu, EHP Tribal Liaison, at [hector.abreu@fema.dhs.gov](mailto:hector.abreu@fema.dhs.gov) , or by phone at (940) 383-7221.

Sincerely,



Kevin Jaynes  
Regional Environmental Officer  
FEMA Region VI

**Attachments**

Original SHPO response dated July 26, 2012

Map of APE

Texas Atlas Map of National Register Listed Properties

Texas Atlas Map of Archaeological Sites

Parcel Map for Site 41BP312

Parcel Map for Site 41BP640



**FEMA**

October 15, 2014

Ms. Amie Tah-Bone, NAGPRA Representative  
Kiowa Tribe of Oklahoma  
SH 9 West  
Carnegie, OK 73015

Re: **Section 106 Review Consultation, HMGP-DR-1999-TX**

**Applicant: Bastrop County, Texas**

**Undertaking: Project #31: South Lost Pines Hazardous Fuels Reduction**

**Location: South Lost Pines Area**

**North-central Bastrop County, Texas**

**Determination: No Historic Properties Affected**

Dear Ms. Tah-Bone:

Bastrop County (Applicant) is requesting Hazard Mitigation Grant Program (HMGP) funding from the Federal Emergency Management Agency (FEMA) for wildlife mitigation activities in the South Lost Pines area in north-central Bastrop County. FEMA has determined that this project constitutes an undertaking and is initiating consultation under Section 106 of the National Historic Preservation Act.

The Applicant contacted the State Historic Preservation Office (SHPO) on July 19, 2012 regarding this project and your office replied by letter on July 26, 2012. FEMA would like to re-initiate Section 106 consultation for this project because we now have additional information on the undertaking as described below.

The Applicant proposes to lower the occurrence of heavy under- and mid-story tree stands in the South Lost Pines area to reduce the intensity of surface fires and lower the probability of fires transitioning into the crowns of the stands. This will be accomplished by using a combination of forestry type mowers, chainsaws, and chippers to reduce fuel concentrations that are more than 30 feet from a structure, and by creating shaded fuel breaks along large areas of continuous fuels adjacent to structures. The fuel reduction work includes the removal of encroaching brush species and ladder fuels (yaupon, holly, and red cedar); removal of dead vegetative materials such as branches, standing loblolly pine, and debris. No root balls or stumps will be removed; stumps would be ground down to ground level and would not be mechanically excavated or pushed. Hardwoods and pines that are 6 inches in diameter at breast height and larger will not be removed but may be trimmed; those 6 inches and smaller in diameter may be removed. The canopy height of larger and taller trees including hardwoods and pines will be raised 5-7 feet above ground by removing the lower limbs. Vegetative material will be ground and mulch will be spread on site.

The Area of Potential Effects (APE) is described as: Beginning at the intersection of State Highway 71 and Tahitian Drive in Bastrop County, Texas, then South to the intersection of Tahitian Drive and Riverside Drive, then West to Akaloa Dr., then North to Mokolea Ln., then NW on Kanakuli, then left on Wahane to Heleakali Dr. Then right on Lamaloa to Kamaiki. North on Kamaiki to Briar Forest Ln. NE on Briar Forest Ln. to Mauna Loa then left to Majestic Pine Dr. Then east from Majestic Pine Dr. along SH 71 to Tahitian Dr., the place of beginning. (See also attached map.)

This APE as noted above and as shown on the attached map depicts a total land mass of approximately 876 acres. Not every acre or parcel will be treated. There will be no fuel reduction activities performed in the following locations within the APE: 1) within 30 feet of a structure; 2) in the 100 year floodplain; or 3) on private property without a valid consent and right of entry given by the property owner.

FEMA has retained CDM Smith to prepare an environmental assessment under NEPA for this undertaking. A CDM Smith archaeologist (RPA) has reviewed the undertaking. A cultural records file search of the Texas Archaeological and Historic Site Atlas was conducted for known historical sites. According to the Atlas there are no National Register of Historic Places (NRHP) properties or districts within the immediate vicinity of the APE. Bastrop State Park is the closest NHRP property or district. It located directly across SR 71 from the APE.

According to the Atlas, there are two (2) previously recorded archaeological sites within the APE (41BP312 and 41BP640). Both are lithic scatters from an unknown prehistoric cultural group. Site 41BP640 has been determined as ineligible for the NRHP. The NRHP eligibility for site 41BP312 has not been determined.

In order to minimize ground disturbance near site 41BP312, Bastrop County will hand cut the following parcels that fall in our near the site boundary: R38485; R38533; R38541; R38549; R38557; R22265; R22273; R22281; R22289; R22297; R22305; R22313; R24386; R24394; R24402; R24410; R24418; R24426; R24434; R24450; R24458; R24466; R24474; R24482; R24490; R24498; R24506; R24514; R24522; and R24530 (see enclosed map). Only man-powered equipment such as chainsaws, wheelbarrows, etc. will be used to cut and remove brush from these parcels. Wheeled equipment and vehicles will access these parcels from Palikea Circle and Moku Manu Drive. The restrictions at these parcels will be a requirement of the FEMA grant funding.

The County does not plan to conduct any fuels reduction on parcel R35749, which is immediately adjacent to site 41BP640 (see enclosed map). The other parcels immediately adjacent to this site and to the west of Akaloa Drive are outside of the proposed project area and APE and also will not be cut. Therefore, there will be no ground disturbance in close proximity to site 41BP640.

In addition, the Applicant will be required to adhere to the following requirement as a condition of the FEMA grant:

*"In the event that archaeological deposits, including any Native American pottery, stone tools, bones, funerary objects, or human remains are uncovered, the project must be halted immediately in the vicinity of the discovery, and all reasonable measures will be taken to avoid or minimize harm to the finds. The Applicant must*

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FEMA requests concurrence with the determination that the two (2) historic resources will not be affected by this undertaking. Your prompt review of the project is greatly appreciated. Should you need information please contact Dorothy Weir, Environmental Specialist, at [Dorothy.weir@fema.dhs.gov](mailto:Dorothy.weir@fema.dhs.gov) or by phone at (940)383-7250 or Hector Abreu, EHP Tribal Liaison, at [hector.abreu@fema.dhs.gov](mailto:hector.abreu@fema.dhs.gov) , or by phone at (940) 383-7221.

Sincerely,



Kevin Jaynes  
Regional Environmental Officer  
FEMA Region VI

**Attachments**

Original SHPO response dated July 26, 2012

Map of APE

Texas Atlas Map of National Register Listed Properties

Texas Atlas Map of Archaeological Sites

Parcel Map for Site 41BP312

Parcel Map for Site 41BP640



**FEMA**

October 15, 2014

Mr. Donald Patterson, Tribal Historian  
Tonkawa Tribe of Oklahoma  
1 Rush Buffalo Road  
Tonwaka, OK 74653

Re: **Section 106 Review Consultation, HMGP-DR-1999-TX**

**Applicant: Bastrop County, Texas**

**Undertaking: Project #31: South Lost Pines Hazardous Fuels Reduction**

**Location: South Lost Pines Area**

**North-central Bastrop County, Texas**

**Determination: No Historic Properties Affected**

Dear Mr. Patterson:

Bastrop County (Applicant) is requesting Hazard Mitigation Grant Program (HMGP) funding from the Federal Emergency Management Agency (FEMA) for wildlife mitigation activities in the South Lost Pines area in north-central Bastrop County. FEMA has determined that this project constitutes an undertaking and is initiating consultation under Section 106 of the National Historic Preservation Act.

The Applicant contacted the State Historic Preservation Office (SHPO) on July 19, 2012 regarding this project and your office replied by letter on July 26, 2012. FEMA would like to re-initiate Section 106 consultation for this project because we now have additional information on the undertaking as described below.

The Applicant proposes to lower the occurrence of heavy under- and mid-story tree stands in the South Lost Pines area to reduce the intensity of surface fires and lower the probability of fires transitioning into the crowns of the stands. This will be accomplished by using a combination of forestry type mowers, chainsaws, and chippers to reduce fuel concentrations that are more than 30 feet from a structure, and by creating shaded fuel breaks along large areas of continuous fuels adjacent to structures. The fuel reduction work includes the removal of encroaching brush species and ladder fuels (yaupon, holly, and red cedar); removal of dead vegetative materials such as branches, standing loblolly pine, and debris. No root balls or stumps will be removed; stumps would be ground down to ground level and would not be mechanically excavated or pushed. Hardwoods and pines that are 6 inches in diameter at breast height and larger will not be removed but may be trimmed; those 6 inches and smaller in diameter may be removed. The canopy height of larger and taller trees including hardwoods and pines will be raised 5-7 feet above ground by removing the lower limbs. Vegetative material will be ground and mulch will be spread on site.

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This APE as noted above and as shown on the attached map depicts a total land mass of approximately 876 acres. Not every acre or parcel will be treated. There will be no fuel reduction activities performed in the following locations within the APE: 1) within 30 feet of a structure; 2) in the 100 year floodplain; or 3) on private property without a valid consent and right of entry given by the property owner.

FEMA has retained CDM Smith to prepare an environmental assessment under NEPA for this undertaking. A CDM Smith archaeologist (RPA) has reviewed the undertaking. A cultural records file search of the Texas Archaeological and Historic Site Atlas was conducted for known historical sites. According to the Atlas there are no National Register of Historic Places (NRHP) properties or districts within the immediate vicinity of the APE. Bastrop State Park is the closest NHRP property or district. It located directly across SR 71 from the APE.

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In addition, the Applicant will be required to adhere to the following requirement as a condition of the FEMA grant:

*“In the event that archaeological deposits, including any Native American pottery, stone tools, bones, funerary objects, or human remains are uncovered, the project must be halted immediately in the vicinity of the discovery, and all reasonable measures will be taken to avoid or minimize harm to the finds. The Applicant must*

*secure all archaeological findings and restrict access to this sensitive area. The Applicant must inform TXDPS immediately. TXDPS will notify FEMA at the earliest practicable time, but not later than 24 hours. FEMA will then consult with the State Historic Preservation Office (SHPO). Work in sensitive areas must not resume until consultation is completed and until FEMA determines that appropriate measures have been taken to ensure compliance with the National Historic Preservation Act (NHPA) and its implementing regulations.”*

FEMA requests concurrence with the determination that the two (2) historic resources will not be affected by this undertaking. Your prompt review of the project is greatly appreciated. Should you need information please contact Dorothy Weir, Environmental Specialist, at [Dorothy.weir@fema.dhs.gov](mailto:Dorothy.weir@fema.dhs.gov) or by phone at (940)383-7250 or Hector Abreu, EHP Tribal Liaison, at [hector.abreu@fema.dhs.gov](mailto:hector.abreu@fema.dhs.gov) , or by phone at (940) 383-7221.

Sincerely,



Kevin Jaynes  
Regional Environmental Officer  
FEMA Region VI

**Attachments**

Original SHPO response dated July 26, 2012

Map of APE

Texas Atlas Map of National Register Listed Properties

Texas Atlas Map of Archaeological Sites

Parcel Map for Site 41BP312

Parcel Map for Site 41BP640



**FEMA**

December 4, 2014

Ms. Edith Erling  
Field Supervisor  
U.S. Fish and Wildlife Service  
17629 El Camino Real, Suite #211  
Houston, TX 77058

Dear Ms. Erling:

This letter is to initiate informal consultation between the Federal Emergency Management Agency (FEMA) and your office under Section 7 of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) regarding wildfire mitigation activities within approximately 875 acres in the Tahitian Village and Pine Forest area of Bastrop County, Texas. The project is proposed for funding under FEMA's Hazard Mitigation Grant Program (HMGP); DR-1999-TX Project #31.

Three federally endangered species are known to occur in Bastrop County: Houston toad (*Bufo houstonensis*); Navasota ladies'-tresses (*Spiranthes parksii*); and whooping crane (*Grus Americana*). In addition, the project area is located within designated critical habitat for the Houston toad.

FEMA is making a "no effect" determination for Navasota ladies'-tresses (*Spiranthes parksii*) and the whooping crane (*Grus Americana*) and therefore is not consulting with the U.S. Fish and Wildlife Service (USFWS) regarding these species.

However, the proposed action is taking place in critical habitat for the Houston toad, and there is a potential for the Houston toad to be present in the project area. Therefore, FEMA is requesting informal consultation with your office in regard to this species.

### **FEDERAL ACTIONS INCLUDED IN THIS CONSULTATION**

Through a FEMA HMGP grant, Bastrop County proposes to conduct hazardous fuels reduction in the Tahitian Village and Pine Forest area of Bastrop County, Texas. The project area is approximately 875 acres and work would be conducted on private property and County-owned lands. Specific property sites for treatment within the project area boundaries have not yet been identified and will be selected after project award and pending voluntary participation agreements by interested private landowners. Bastrop County will not conduct work within the 100-year floodplain, which comprises a very small portion of the project area (see enclosure). A

small portion (approximately 25 percent) of the project area falls within the burn scar from the 2011 Bastrop County Complex Fire.

The objective of the proposed project is to remove ladder fuels from the understory and create closed canopy shaded fuel breaks to reduce the risk of a crown fire. The project would reduce fuels on undeveloped lots throughout the project area that would bolster the effectiveness of defensible space on developed lots that has already been and/or is being conducted through other means. The project would also include the creation of shaded fuel breaks between residential areas and large adjacent blocks of wildland fuels. Bastrop County will use chainsaws, forestry mowers, chippers, and haul trucks for hand cutting and mechanical thinning. The fuel reduction work includes the removal of encroaching brush species and ladder fuels (yaupon, holly, and red cedar); removal of dead vegetative materials such as branches, standing loblolly pine, and debris. The canopy height of larger and taller living trees including hardwoods and pines will be raised up to 8 feet above ground by removing the lower limbs. No rootballs or stumps will be removed; stumps would be ground down to ground level and would not be mechanically excavated or pushed.

Bastrop County may selectively cut living pine and oak trees in cases where the living tree contributes to the risk of a crown fire based on the density of vegetation and other living trees in the treatment area. Again, the intent of the proposed project is not to clear cut the treatment areas, rather the intent is to reduce the threat of a crown fire while maintaining a closed or shaded canopy (see enclosed before and after photos as an example of proposed treatment). Some eastern red cedar may selectively be left in place if no hardwoods and pines are present to maintain some canopy cover.

Some cut vegetative material may be left on site to biodegrade. Most vegetative material will be ground on-site and mulch will be spread on-site. Any mulch that is left behind must cover the forest floor in no more than a 2-inch layer. The County will not use any herbicides during project implementation. The project is anticipated to take 2 years to implement given public outreach efforts. Per FEMA grant requirements, the County must maintain the areas where hazardous fuels reduction activities have been completed to achieve the proposed wildfire hazard mitigation.

### **STATUS OF HOUSTON TOAD IN PROJECT AREA**

The Houston toad depends on healthy and mature forest ecosystems with mixed species composition, significant canopy cover, an open understory layer with a diverse herbaceous component, and breeding areas (ephemeral wet-weather ponds and other water features, such as stock tanks, creeks, streams, wetlands, seeps, and springs) with shaded edges. They are most commonly found within the surrounding upland habitat adjacent to breeding sites. The toad uses drainages and riparian areas for dispersal and movement. The edges of breeding ponds are used by emerging juvenile toadlets after they metamorphose from their larval (tadpole) stage (USFWS, 2011a).

This species is largely inactive during hot, dry seasons and during the coldest months, though surface movement has been documented during the summer months (Brown et al, 2011; SSAR, 2012) depending on weather conditions. Most breeding occurs from February to April, when the minimum air temperature is above 14 C. Breeding has been reported as late as June. Breeding habitat consists of a body of water supporting the reproductive and larval toad life stages. Eggs and larvae develop in shallow water. For successful breeding, water must persist for at least 60 days. Larvae hatch in four to seven days and metamorphose in three to nine weeks, depending on the water temperature. This species locally migrates between breeding and non-breeding habitats. The adjacent uplands support adults year round and provide patch connectivity outward from the ponds for juvenile dispersal (USFWS, 2011c). The toad tends to occupy areas with 60 percent to 100 percent canopy cover (Forstner et al, 2011). Upland forests in the Lost Pines area of Bastrop County serve as occupied and dispersal habitat for the Houston toad and cover/shade is a necessity to facilitate distribution without desiccation (LPRT, 2011).

Prior to the Bastrop County Complex Fire in 2011, the Houston toad range in Bastrop County was in poor condition as a result of what is speculated to be the worst one-year drought on recorded history for this area (LPRT, 2011). Approximately 41 percent of the high suitability habitat for the Houston toad within Bastrop County was moderately to heavily burned during the fire (Forstner et al, 2011). Houston toad egg strands, tadpoles, toadlets, juveniles, and adults have all been detected inside and outside the burn perimeter in the years following the fire. Houston toads have been detected in Bastrop during chorusing season and during dispersal from the ponds in 2012, 2013, and 2014. These encounters have substantiated that the Houston toad survived the wildfire and that it is present inside and outside the burn area in Bastrop County.

The entire project area falls within Houston toad critical habitat and within the Lost Pines Habitat Conservation Plan area. The Houston toad is known to exist in the project area based on annual surveys conducted by Houston toad biologists (Dr. Forstner, personal communication, October 2014). Following the Bastrop County Complex Fire, Houston toads may have migrated and may be moving into previously unoccupied areas.

## **AVOIDANCE AND MINIMIZATION MEASURES**

The following avoidance and minimization measures will be implemented by Bastrop County for the proposed FEMA-funded wildfire mitigation activities in order to minimize impact to the toad. These measures are based on the USFWS Best Management Practices (2011a, 2011b); the Lost Pines Habitat Conservation Plan (Loomis Austin, 2007); FEMA consultations with USFWS for disaster recovery activities in the Bastrop burn area; and on discussions with Dr. Forstner, USFWS, and Bastrop County. Implementation of these measures is a condition of federal funding.

1. Bastrop County will deploy a Houston toad monitor that is permitted in identifying, locating, handling, removing, and transporting the Houston toad. Should a Houston toad be encountered during vegetation management activities, work must cease immediately. The biological monitor will secure and relocate the Houston toad. The Service's Clear Lake Ecological Services Field Office will be contacted at (281) 286-8282.

2. All work crews must be trained by a Houston toad biologist prior to starting work. Training will include an overview of Houston toad characteristics, life cycle, and habitat requirements, and a review of the work conditions outlined in this agreement. New crew personnel must be trained prior to starting work.
3. The number and size of entry and exit points for heavy equipment to move into and out of forested areas will be kept to the minimum needed for conducting safe and effective vegetation management operations, while also minimizing soil disturbance.
4. Any mowing equipment used for clearing grass, forbs, and small-diameter woody vegetation will be set at a height of at least 5 inches above the ground to minimize the potential for striking toads. In cases where leaving woody stumps of 5 inches tall or greater would pose a risk of damage to equipment, Bastrop County may mow vegetation at less than 5 inches above ground level. In such cases mowing shall be restricted to the minimum area necessary.
5. Any mulch, chips, or other woody debris from tree removal that is left on site must cover the forest floor in no more than a 2-inch layer.
6. Vegetation that occurs within 200 feet of a potential Houston toad breeding site (ponds, stock tanks, creeks, streams, wetlands, seeps, and springs that are within or immediately adjacent to a forested area) or riparian area will be hand cut unless otherwise approved by the Houston toad monitor. Any soil disturbance, clearing, or operation of heavy equipment within 200 feet of a potential breeding site must be approved by the Houston toad monitor prior to the start of work.
7. Streams, riparian zones, wetlands, and areas near potential Houston toad breeding sites will not be used for staging equipment or refueling. Equipment must be stored, serviced, and fueled at least 200 feet away from these sensitive areas.
8. Gasoline- and diesel- fueled field equipment must be inspected daily for signs of fuel or hydraulic leaks; such leaks must be repaired promptly and measures will be taken to prevent soil contamination. All hazardous materials related to construction or maintenance activities will be properly contained, used, and/or disposed of.
9. Following vegetation management activities, Bastrop County will ensure that equipment use and debris removal activities have not resulted in the creation of potential artificial breeding sites. For example, large tire ruts will be smoothed so as not to create an undesirable breeding pond.
10. Under no circumstances will stumps be removed mechanically (i.e., excavated or pushed).

## **DETERMINATION**

As noted above, the federal actions covered by this consultation are taking place in designated critical habitat and FEMA has a responsibility to ensure that its actions will not likely result in the destruction or adverse modification of this habitat. Destruction or adverse modification of critical habitat is defined as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include those adversely modifying any physical or biological features that were the basis for determining the habitat to be critical. Primary constituent elements have not been designated for the critical habitat of the Houston toad, but typical habitat for the species includes areas with a soil type that allows for the weak burrowing behavior of the species and both temporary and permanent ponds (White et al, 2006). The activities proposed by Bastrop County will not impact temporary or permanent ponds nor will they alter soil type. The vegetation management activities proposed by Bastrop County do not involve extensive removal of large living pines and oaks, though in some cases these trees may be selectively removed to reduce the risk of crown fire. The forest canopy, which provides shaded habitat for toad dispersal, will be maintained. Measures are being taken to minimize the work that is conducted immediately adjacent to breeding areas (ephemeral wet-weather ponds, creeks, streams, wetlands, seeps, and springs). Measures are also being taken to minimize ground disturbance which will minimize impacts to pine and other seedling growth. The project is expected to benefit Houston toad habitat in the long term because it will reduce the risk of a destructive wildfire similar to the fire that occurred in 2011.

The Houston toad has been documented within portions of the project area in the past several years. The Houston toad may chorus within and/or disperse across the proposed project area. Work will be conducted year-round, during chorusing season and during the summer and winter months when the toads are less active on the ground surface. Based on a review of the Houston toad and its habitat requirements; the assumption that adult toad population numbers are likely low in the project area based on recent past population surveys; and the implementation of the required avoidance and minimization measures detailed above, FEMA has determined that the federally funded work described above may affect, but is not likely to adversely affect the Houston toad. FEMA has also determined that its actions will not adversely modify critical habitat. Long-term benefits to Houston toad habitat and the species itself are expected to result from the project.

FEMA requests your concurrence with this effect determination and input on any additional conservation measures required to ensure accuracy of this determination. Thank you for your attention and assistance. Should you have any questions, please contact FEMA Environmental Specialist, Dorothy Weir at [Dorothy.Weir@fema.dhs.gov](mailto:Dorothy.Weir@fema.dhs.gov) or at 940-435-9275.

Sincerely,



Kevin Jaynes  
Regional Environmental Officer  
FEMA Region 6

Enclosures:

Maps of Project Area

Map of Floodplain within Project Area

Example Treatment Photos

## REFERENCES

Brown, D., J. Baccus, D. Means, and M.R. Forstner. 2011. Potential positive effects for fire on juvenile amphibians in a southern USA pine forest. *Journal of Fish and Wildlife Management* 2(2): 135-145.

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Loomis Austin. 2007. Lost Pines Habitat Conservation Plan for Bastrop County, Texas. Available online at <http://www.co.bastrop.tx.us/uploads/documents/Lost%20Pines%20Habitat%20Conservation%20Plan.pdf>. Accessed November 10, 2014.

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SSAR (Society for the Study of Amphibian and Reptiles). 2012. Natural History Notes. *Herpetological Review* 43(2): 117-118.

USFWS (U.S. Fish and Wildlife Service). 2011a. Post-Wildfire Clean-Up and Response in Houston Toad Habitat Best Management Practices. Available online at [http://www.fws.gov/southwest/es/Documents/R2ES/Fire\\_CleanUp\\_and\\_Response\\_BMPs20110924.pdf](http://www.fws.gov/southwest/es/Documents/R2ES/Fire_CleanUp_and_Response_BMPs20110924.pdf). Accessed November 10, 2014.

USFWS. 2011b. Post-Wildfire Habitat Restoration Activities in Houston Toad Habitat Best Management Practices. Available online at [http://www.co.bastrop.tx.us/bcdisaster/files/PDF\\_Files/Habitat\\_Restoration\\_BMPs\\_FINAL.pdf](http://www.co.bastrop.tx.us/bcdisaster/files/PDF_Files/Habitat_Restoration_BMPs_FINAL.pdf). Accessed November 10, 2014.

USFWS. 2011c. Houston toad (*Bufo houstonensis*) 5-Year Review: Summary and Evaluation. Available online at [http://www.fws.gov/southwest/es/Documents/R2ES/HoustonToad\\_5-yr\\_Review\\_Nov2011.pdf](http://www.fws.gov/southwest/es/Documents/R2ES/HoustonToad_5-yr_Review_Nov2011.pdf). Accessed November 10, 2014.

White, J., C. Giggelman, and P. Connor. 2006. Recommended Water Quality for Federally Listed Species in Texas. Available online at [http://www.fws.gov/southwest/es/Documents/R2ES/Recommended\\_Water\\_Quality\\_for\\_Federally\\_Listed\\_Species\\_in\\_Texas.pdf](http://www.fws.gov/southwest/es/Documents/R2ES/Recommended_Water_Quality_for_Federally_Listed_Species_in_Texas.pdf). Accessed November 10, 2014.



**BASTROP COUNTY  
FUEL  
REDUCTION  
SOUTH AREA**

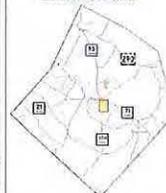


0 250 500 1,000  
Feet

**Legend**

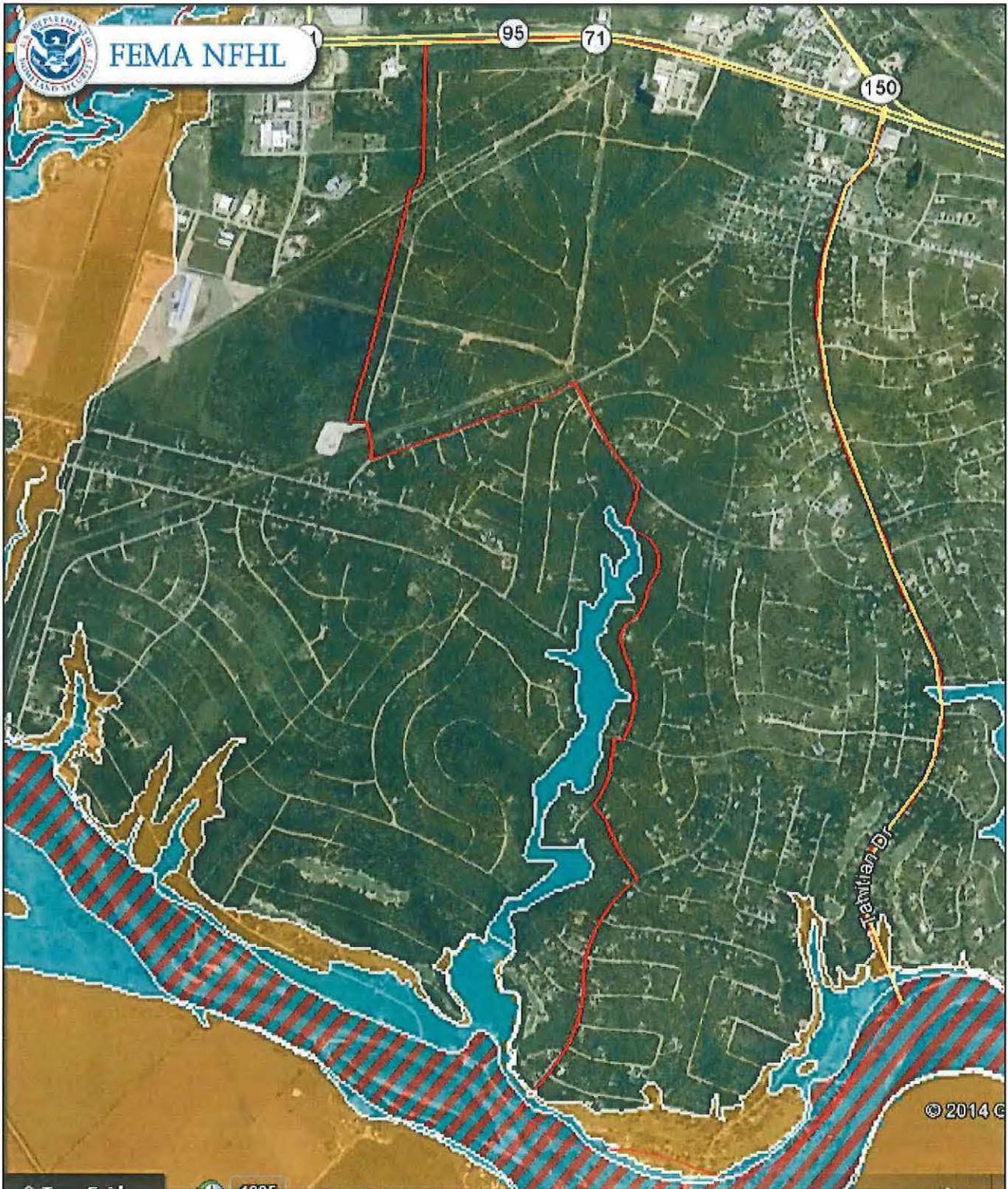
-  Project Area
-  Land Parcel
-  Roadways
-  Colorado River

**LOCATION MAP**



Map Produced: 08/12/2014

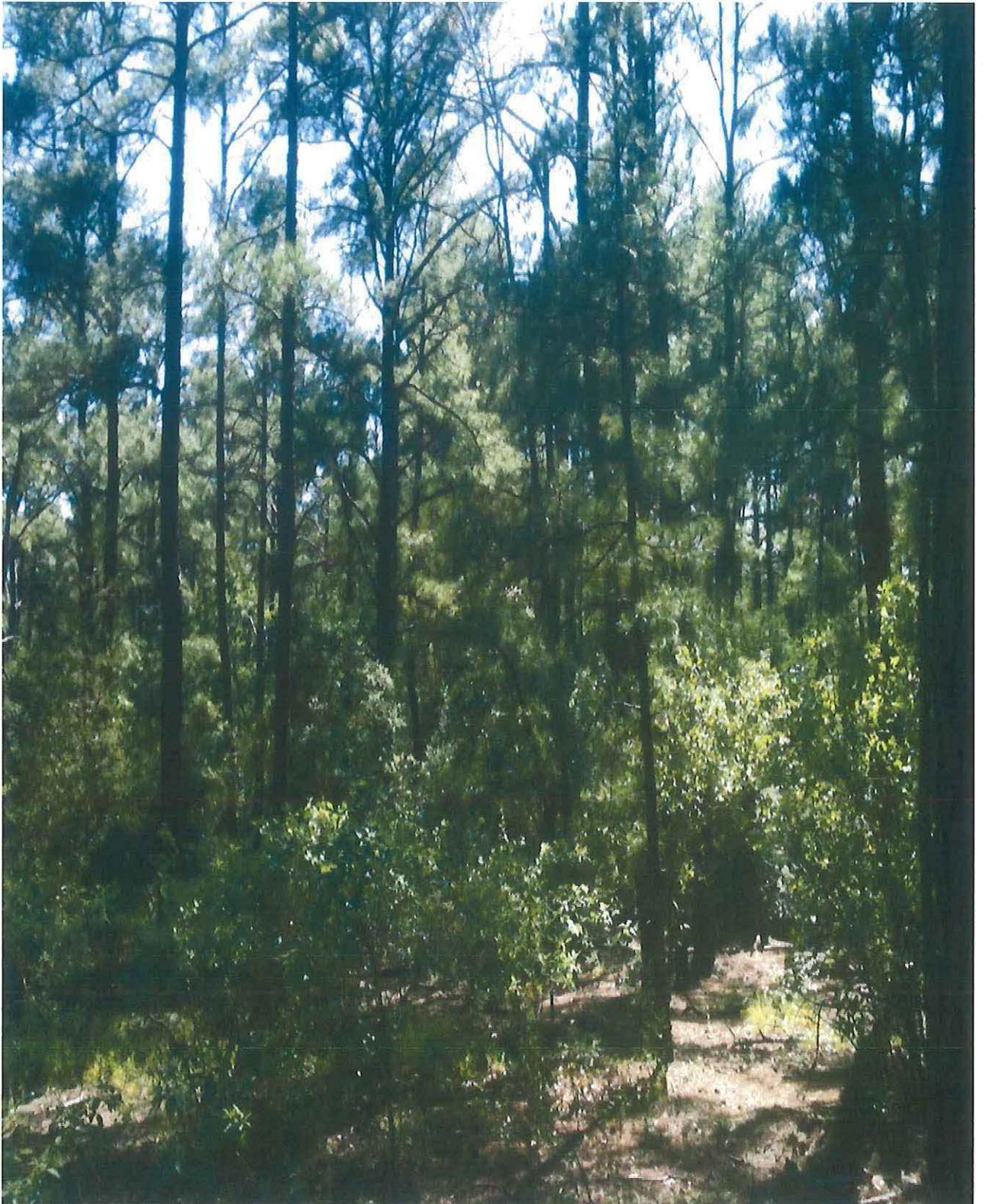
Bastrop County provides this map "as is" and assumes no liability for its completeness or accuracy. Information shown on this map is derived from public records that are constantly undergoing change and do not require a site survey. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering or surveying purposes. It does not represent or on the ground survey and represents only the approximate relative location of property boundaries.



**Floodplain Areas within Project Area**

**HMGP-DR-1999-TX Project #31 Bastrop County Hazardous Fuels Reduction**

*Note:* Brown shaded areas indicate 500 year floodplain, and work may take place in these locations



**Example of Treatment Area Prior to Hazardous Fuels Removal**



**Example of Treatment Area After Hazardous Fuels Removal**



In Reply Refer To:  
FWS/R2/TCES/

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Texas Coastal Ecological Services Field Office  
17629 El Camino Real, Suite 211  
Houston, Texas 77058  
281/286-8282 / (FAX) 281/488-5882



January 27, 2015

Kevin Jaynes  
U.S. Department of Homeland Security  
FEMA Region 6  
800 North Loop 288  
Denton, Texas 76209-3698

Dear Mr. Jaynes:

Thank you for your letter dated December 4, 2014, initiating consultation pursuant to Section 7 of the Endangered Species Act (Act) for the Federal Emergency Management Agency's (FEMA) funding of recovery operations related to the Bastrop County Complex Fire of September 2011. FEMA is providing Hazard Mitigation Grant Program (HMGP) funding to undertake wildfire mitigation (mechanical thinning of understory vegetation) within approximately 875 acres in the Tahitian Village and Pine Forest areas of Bastrop County, Texas. The fire recovery actions considered herein occur within Bastrop County, Texas and are depicted in exhibits accompanying the letter request.

The U.S. Fish and Wildlife Service (Service) participated in an early coordination meeting for this project on October 30, 2014 with FEMA, Dr. Michael Forstner (Texas State University) and Mr. Mike Fisher (Bastrop County OEM). The Service understands from the consultation request and the earlier meeting that the project includes removal of ladder fuels (understory vegetation) that will reduce the wildfire fuel load on the properties within the 1825-acre project area. FEMA determined that the wildfire mitigation actions may affect, but are not likely to adversely affect the federally endangered Houston toad *Bufo houstonensis*. The determination is based on the following information:

1. Bastrop County will deploy a Houston toad monitor that is permitted in identifying, locating, handling, removing, and transporting the Houston toad. Should a Houston toad be encountered during vegetation management activities, work must cease immediately. The Service's Clear Lake Ecological Services Field Office will be contacted at (281) 286-8282.
2. All work crews must be trained by a Houston toad biologist prior to starting work. Training will include an overview of Houston toad characteristics, life cycle, and habitat requirements, and a review of the work conditions outlined in this agreement. New crew personnel must be trained prior to starting work.

3. The number and size of entry and exit points for heavy equipment to move into and out of forested areas will be kept to the minimum needed for conducting safe and effective vegetation management operations, while also minimizing soil disturbance.
4. Any mowing equipment used for clearing grass, forbs, and small-diameter woody vegetation will be set at a height of at least 5 inches above the ground to minimize the potential for striking toads. In cases where leaving woody stumps of 5 inches tall or greater would pose a risk of damage to equipment, Bastrop County may mow vegetation at less than 5 inches above ground level. In such cases mowing shall be restricted to the minimum area necessary.
5. Any mulch, chips, or other woody debris from tree removal that is left on site must cover the forest floor in no more than a 2-inch layer.
6. Vegetation that occurs within 200 feet of a potential Houston toad breeding site (ponds, stock tanks, creeks, streams, wetlands, seeps, and springs that are within or immediately adjacent to a forested area) or riparian area will be hand cut unless otherwise approved by the Houston toad monitor. Any soil disturbance, clearing, or operation of heavy equipment within 200 feet of a potential breeding site must be approved by the Houston toad monitor prior to the start of work.
7. Streams, riparian zones, wetlands, and areas near potential Houston toad breeding sites will not be used for staging equipment or refueling. Equipment must be stored, serviced, and fueled at least 200 feet away from these sensitive areas.
8. Gasoline- and diesel- fueled field equipment must be inspected daily for signs of fuel or hydraulic leaks; such leaks must be repaired promptly and measures will be taken to prevent soil contamination. All hazardous materials related to construction or maintenance activities will be properly contained, used, and/or disposed of.
9. Following vegetation management activities, Bastrop County will ensure that equipment use and debris removal activities have not resulted in the creation of potential artificial breeding sites. For example, large tire ruts will be smoothed so as not to create an undesirable breeding pond.
10. Under no circumstances will stumps be removed mechanically (i.e., excavated or pushed).

Based on the aforementioned information, the Service concurs that the fuel reduction/wildfire mitigation is not likely to adversely affect the Houston toad. Our concurrence with FEMA's determination of may affect, but not likely to adversely affect pursuant to Section 7 of the Act, is based upon a review of the Service's files, our multiple site inspections in Bastrop County since the fire, communications with species experts and others, and is contingent upon adherence to the measures enumerated herein. In the event the project changes or additional information on

Mr. Jaynes

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listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Our concurrence is provided in accordance with the provisions of the Act of 1973 (16 U.S.C. 1531 et seq.). If you have any questions, or need additional information, please contact Mr. Jeff Hill, staff biologist or myself at 281/286-8282.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Gardiner" with a stylized flourish underneath.

Dawn Gardiner  
Acting Field Supervisor