

Appendix A

Figures

**The University of Texas M. D. Anderson Cancer Center
Science Park - Research Division
Virginia Harris Cockrell Cancer Research Center
Smithville, Texas**

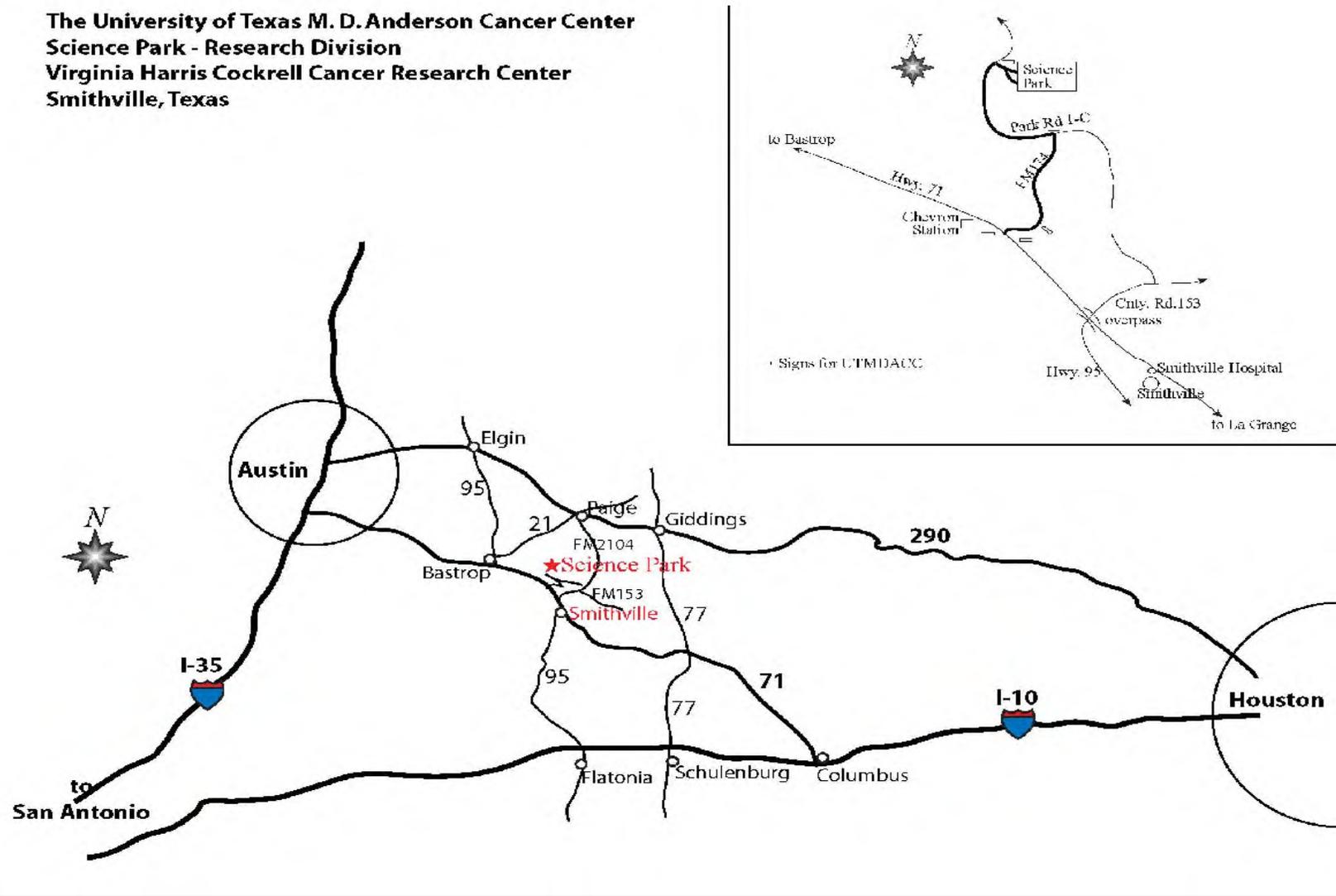


Figure 1-1 Site Location Map



Figure 1-2 MD Anderson Campus Site Plan



Vegetation and Wildlands

- Developed
- Pine - Juniper Woodland (Low Fuel Load)
- Pine - Oak Rocky Uplands (Moderate Fuel Load)
- Pine - Oak Savannah (Moderate Fuel Load)
- Pine - Oak Woodland (Moderate Fuel Load)
- Pine - Yaupon Slopes (High Fuel Load)

Vegetation and Wildland Fuels Map

MDACC - Smithville²
Research Center

Drawn By: AM Date: 01-26-12 Project No.: 25014429 Figure: -1

Legend

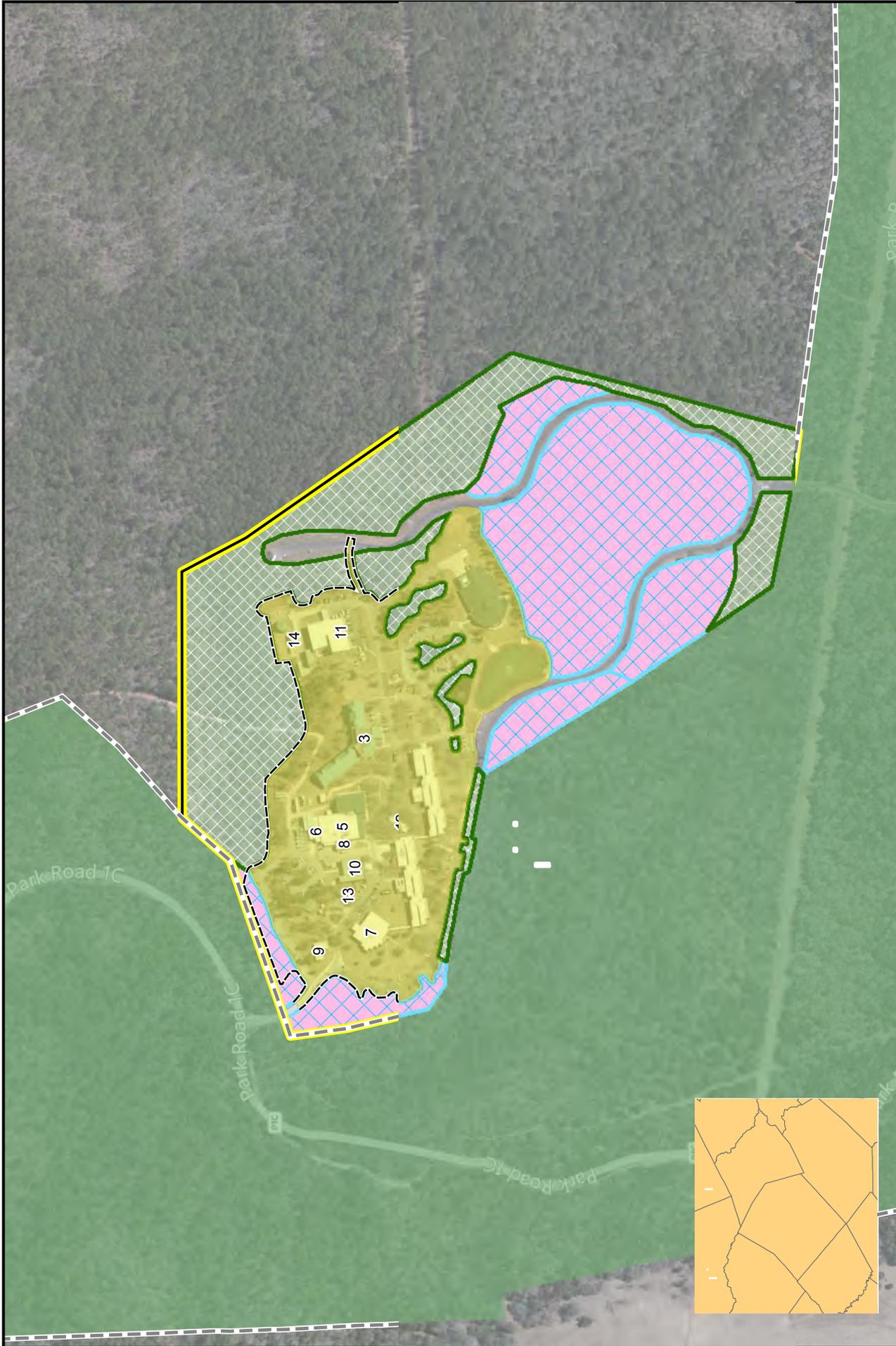
1 Project Location

Buescher State Park

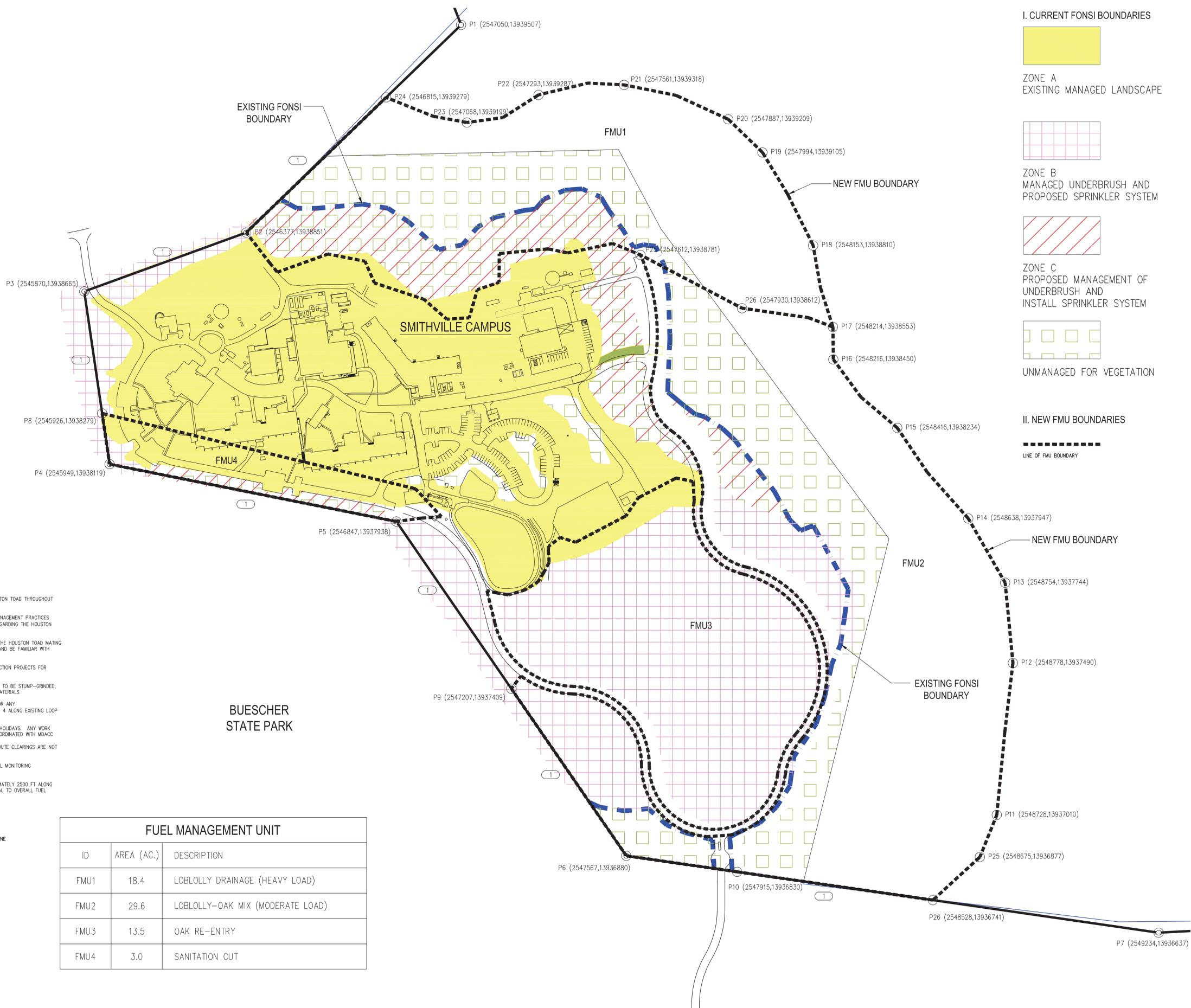
0 0.25 0.5 Miles
1 inch = 0.5 miles

URS

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 1110550 Richmond, Suite 15 Houston, TX 77042 Tel: 713.914.6699 Fax: 713.789.8404		Existing Tree Line State Park Boundary Project Location Unmanaged for Vegetation	Zone A - Existing Managed Landscape Zone B - Existing Managed Underbrush Removal	0 200 400 Feet 1 inch = 500 feet	Existing Defense Zones MDACC - Smithville 2 Research Center	Drawn By: AM Date: 04-20-12 Project No.: 25014429 Figure: - 2
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- I. CURRENT FONSI BOUNDARIES**
- ZONE A
EXISTING MANAGED LANDSCAPE
 - ZONE B
MANAGED UNDERBRUSH AND PROPOSED SPRINKLER SYSTEM
 - ZONE C
PROPOSED MANAGEMENT OF UNDERBRUSH AND INSTALL SPRINKLER SYSTEM
 - UNMANAGED FOR VEGETATION
- II. NEW FMU BOUNDARIES**
- LINE OF FMU BOUNDARY

GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE BIOLOGICAL MONITORING OF THE HOUSTON TOAD THROUGHOUT FUEL REDUCTION PROJECTS.
2. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES (BMPs) DEVELOPED BY US FISH & WILDLIFE SERVICES AND FEMA REGARDING THE HOUSTON TOAD.
3. ALL FUEL REDUCTION ACTIVITIES MUST BE COMPLETED OUTSIDE OF THE HOUSTON TOAD MATING SEASON. ALL CONSTRUCTION PERSONNEL MUST RECEIVE TRAINING AND BE FAMILIAR WITH HOUSTON TOAD BMPs SET FORTH BY FEMA AND USFWS.
4. CONTRACTOR MAY NOT UTILIZE TIMBER PRODUCTS FROM FUEL REDUCTION PROJECTS FOR COMMERCIAL TIMBER.
5. STUMPS AROUND PEDESTRIAN AND VEHICULAR TRAFFIC AREAS NEED TO BE STUMP-GROUNDED, AREA CLEANED, AND PLACED BACK WITH REQUIRED LANDSCAPING MATERIALS.
6. THE CONTRACTOR SHALL GRIND STUMPS DOWN TO MATCH GRADE FOR ANY LANDSCAPED/MOWED AREAS ADJACENT TO FMU 2, FMU 3, AND FMU 4 ALONG EXISTING LOOP ROAD.
7. REGULAR WORKING HOURS ARE 7AM-4PM MONDAY-FRIDAY EXCEPT HOLIDAYS. ANY WORK PERFORMED BEFORE OR AFTER REGULAR WORK HOURS MUST BE COORDINATED WITH MDACC.
8. IN ACCORDANCE WITH REGULATORY GUIDELINES, VEHICULAR HAUL ROUTE CLEARINGS ARE NOT PERMITTED ON FUEL REDUCTION PROJECTS.
9. REFER TO FUEL REDUCTION SPECIFICATION 13 00 00 AND BIOLOGICAL MONITORING SPECIFICATION 02 20 00.
10. CONTRACTOR SHALL HAUL AWAY PRE-SCRIBED BURN PILE APPROXIMATELY 2500 FT ALONG NORTHERN EMERGENCY EGRESS TRAIL. THIS TASK WILL BE INCIDENTAL TO OVERALL FUEL REDUCTION EFFORTS.
11. REFER TO DWG C-102 "GRIND STUMP PLAN".

LEGEND

- ① FUEL REDUCTION APPLICATION SHALL EXTEND TO PROPERTY LINE

FUEL MANAGEMENT UNIT		
ID	AREA (AC.)	DESCRIPTION
FMU1	18.4	LOBLOLLY DRAINAGE (HEAVY LOAD)
FMU2	29.6	LOBLOLLY-OAK MIX (MODERATE LOAD)
FMU3	13.5	OAK RE-ENTRY
FMU4	3.0	SANITATION CUT

Figure 3-1 Proposed Fire Management Units Map

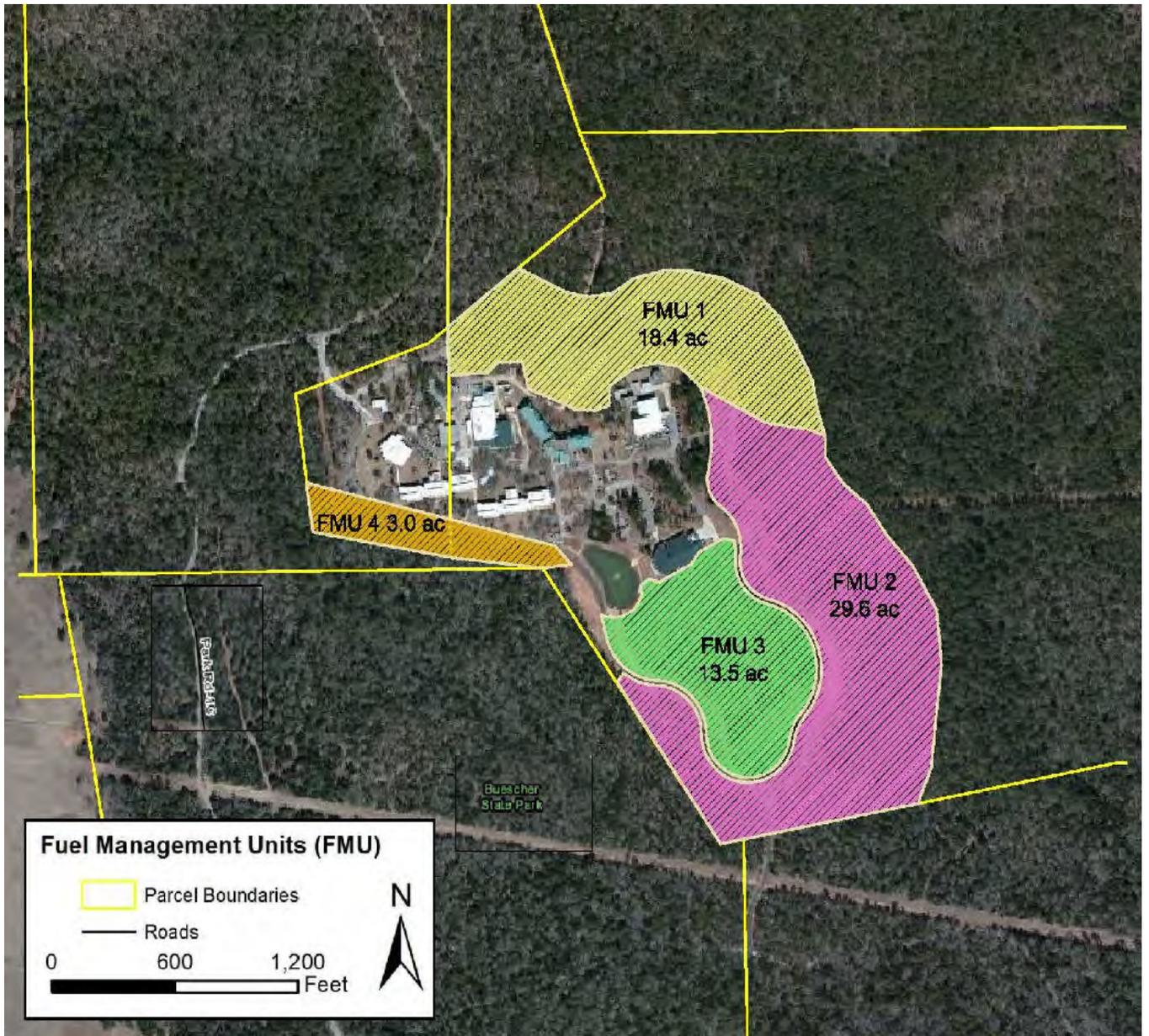


Figure 3-2 Proposed Fire Management Units Aerial Map -



Area to stockpile brush for grinding



19219 Katy Freeway, Suite 100
Houston, Texas 77094
Tel: 281-646-2400
Fax: 281-646-2401

Legend: □

- Brush Stocking Area
- Load Up / Haul Route



Source: Google Earth; imagery date: 5/15/2014



Map of MDACC Haul Routes and Temporary Staging/Grinding Site

MDACC - Smithville Research Center

Drawn By:	Date:	Project No.:	Figure:
NAB	5/19/2015	25015345	3-3



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Delineated Features
 Pond
 Drainages
Fire Management Units

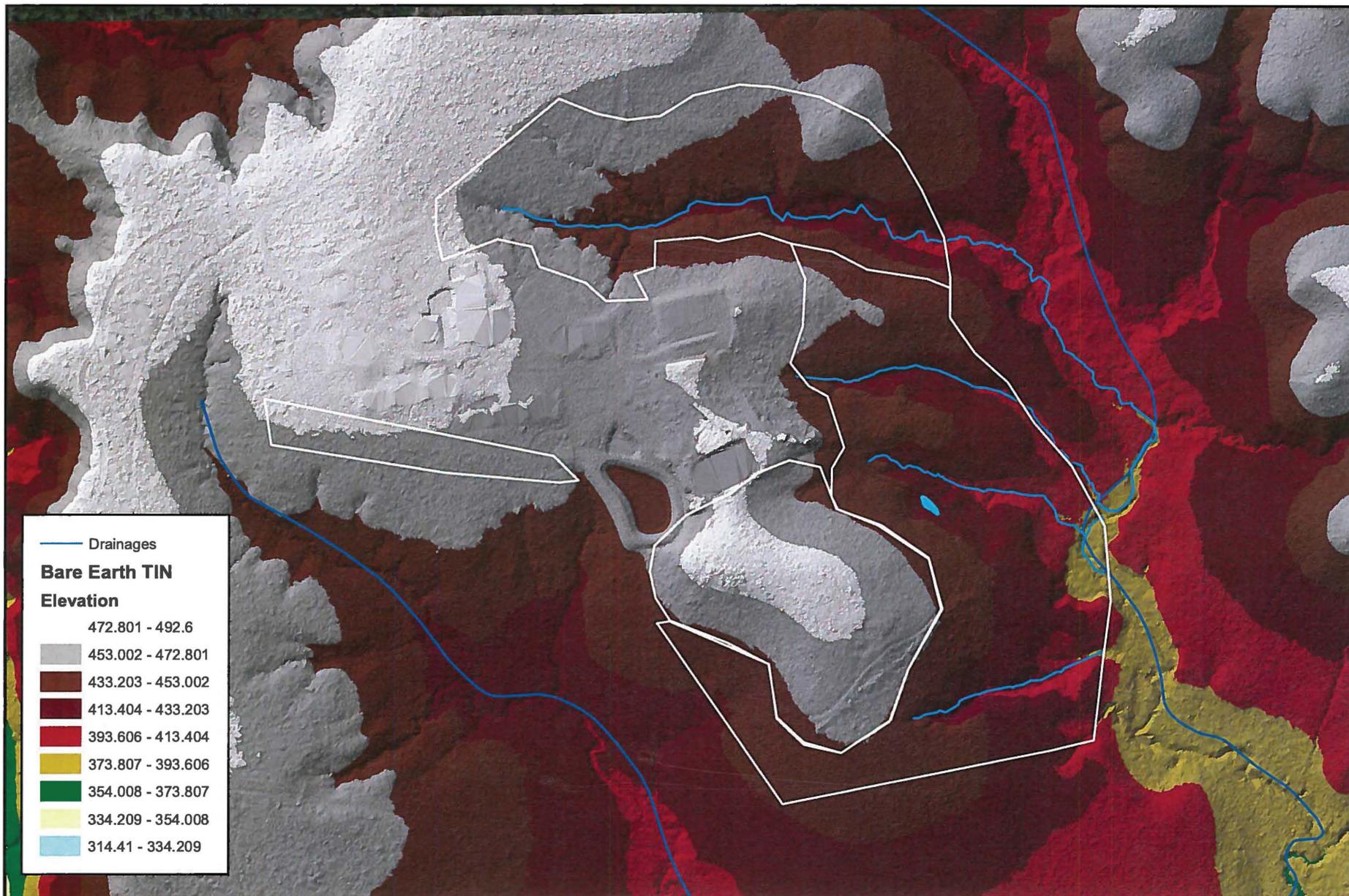
USGS NHD
Flowline Feature Type
 Stream/River
Waterbody Feature Type
 Lake/Pond

FEMA Flood Hazard Zones
Zone Type
 1% Annual Chance Flood Hazard
NED Contours
 -460- Contour Elevation

Topography Map

MDACC - Smithville Research Center

Drawn By: CW	Date: 3/4/2015	Project No.: 25014429	Figure 4_1
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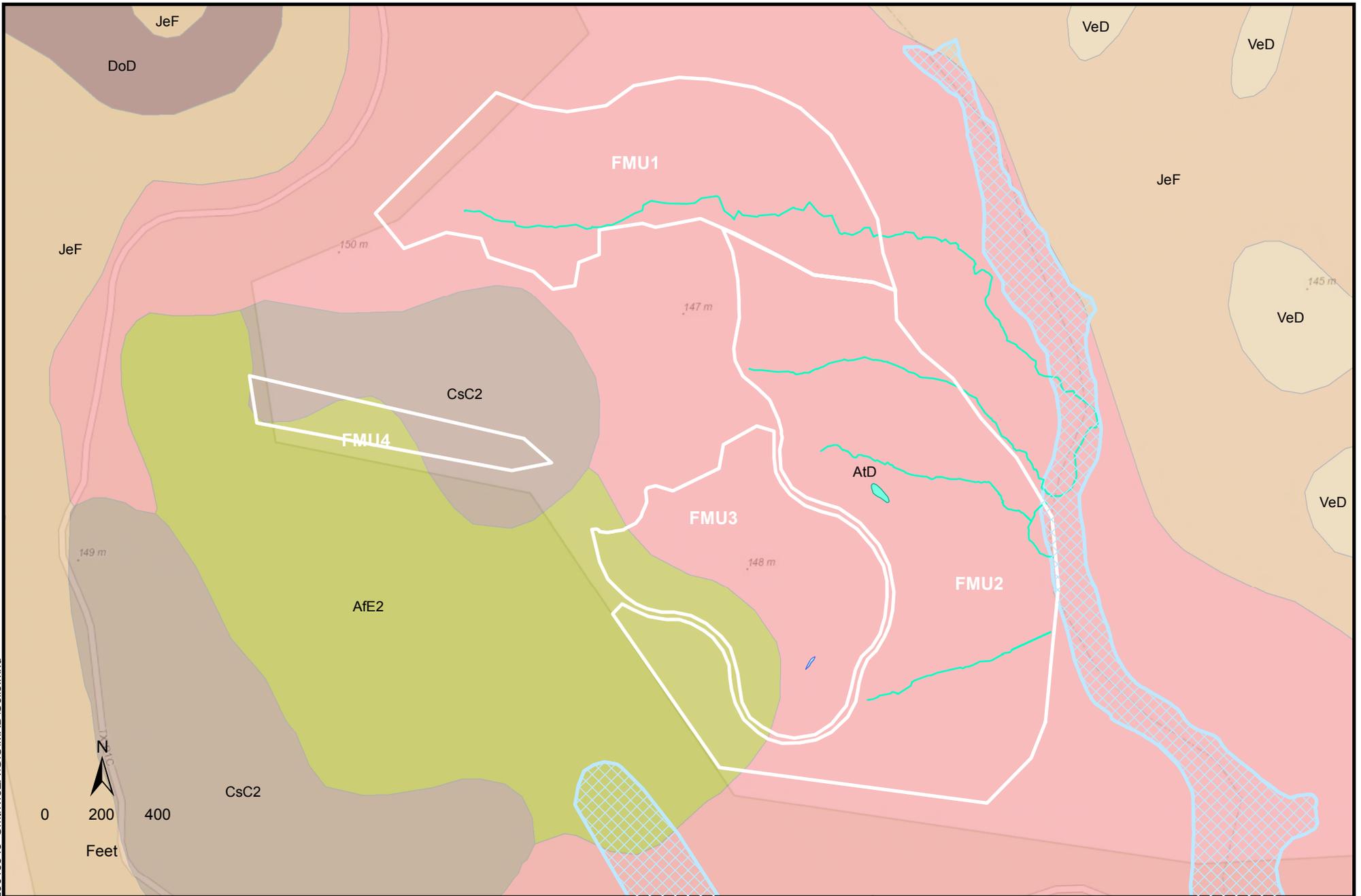
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N

0 200 400
Feet

LIDAR - Ground Level			
MDACC - Smithville Research Center			
Drawn By: CW	Date: 3/10/2015	Project No.: 25014429	Figure:



Path: O:\Projects\WTR\25015345_SmithvilleEA\GIS\IMXD\Soils.mxd



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- Afe2 - Edge fine sandy loam, 5 to 12 percent slopes, eroded
- AtD - Edge gravelly fine sandy loam, 3 to 8 percent slopes
- CsC2 - Crockett fine sandy loam, 2 to 5 percent slopes, eroded
- JeF - Jedd gravelly fine sandy loam, 5 to 20 percent slopes

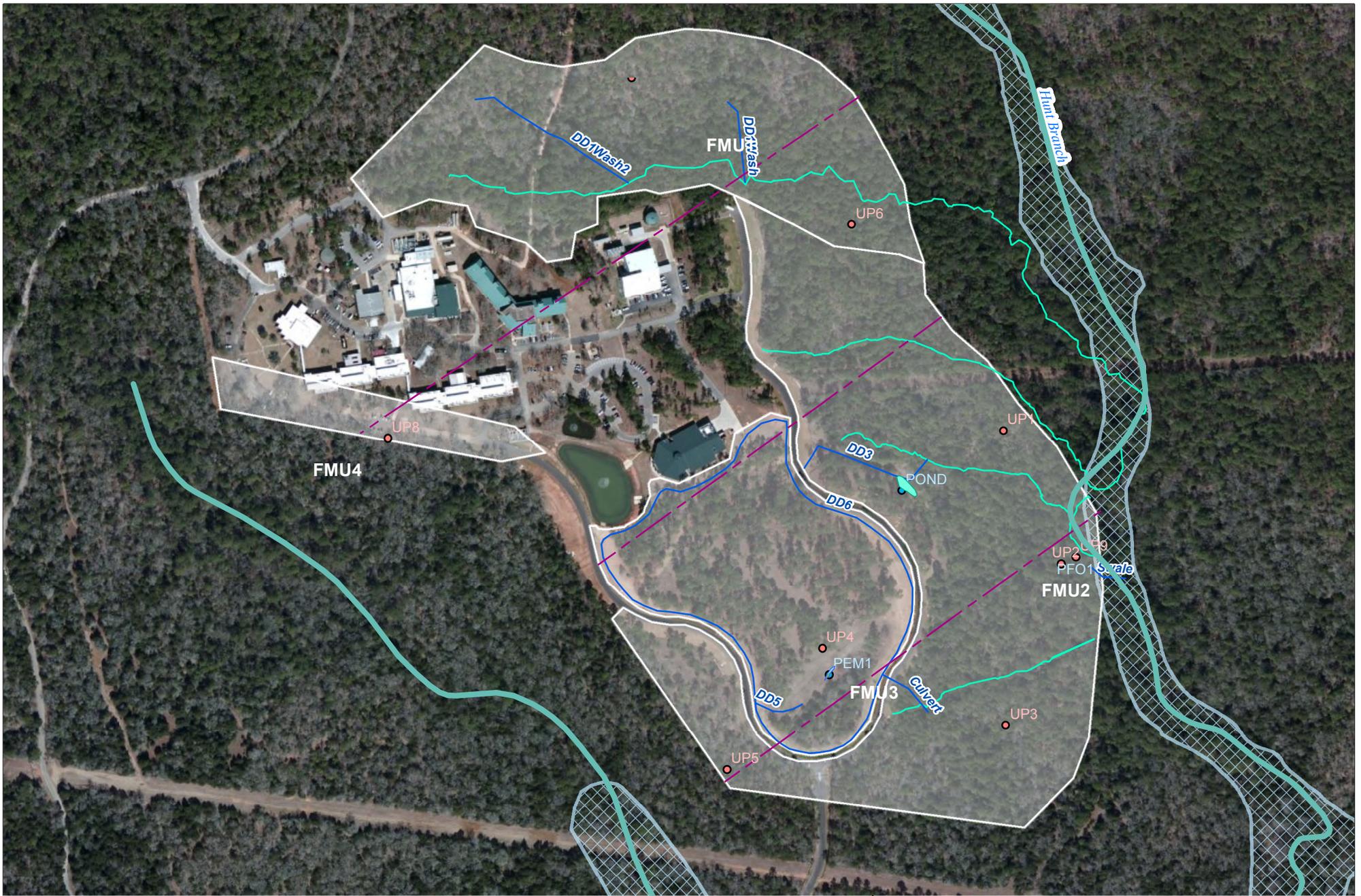
FEMA Flood Hazard Zones

- Zone Type**
- 1% Annual Chance Flood Hazard

Soils & Floodplain Map

MDACC - Smithville Research Center

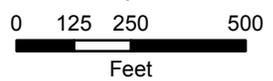
Drawn By: CW	Date: 4/6/2015	Project No.: 25014429	Figure 4_3
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- Upland Soil Pit
- Wetland Soil Pit
- Transects
- Updated Drainages
- Drainages
- Stream/River
- Wetlands

FEMA Flood Hazard Zones (FEMA symbology)

- Zone Type**
- 1% Annual Chance Flood Hazard

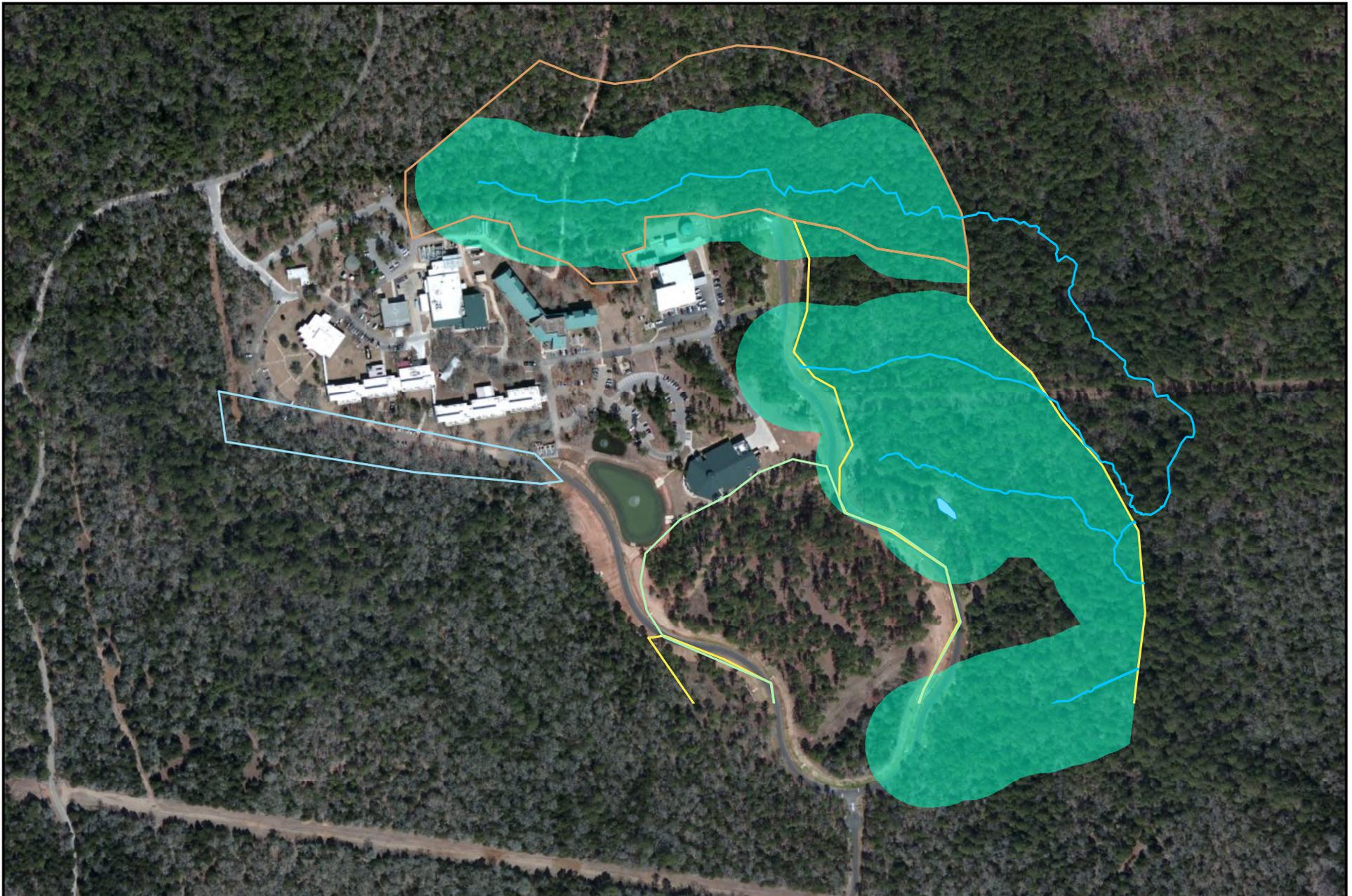


Wetlands Map

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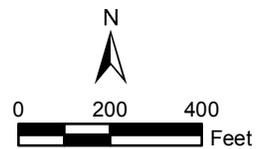
Drawn By:	Date:	Project No.:	
CW	4/6/2015	25014429	Figure 4-4



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-  Drainages
-  Pond
-  200ft Habitat Buffer

- Fire Management Units**
-  FMU1
 -  FMU2
 -  FMU3
 -  FMU4



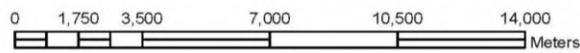
Potential Houston Toad Habitat and Buffer Zone

MDACC - Smithville Research Center

Drawn By: CW	Date: 2/10/2015	Project No.: 25014429	Figure 4-5
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- Legend
- Museum
 - Historical_Marker
 - National Register Property
 - National Register District
 - Cemetery



Source: Texas Historic Commission, Texas Historic Sites Atlas, accessed March 2012

APPLICANT MD Anderson Cancer Center		TITLE Historic Site Map	
PROJECT Smithville Research Center Wildfire Mitigation			
DATE 10/19/2012	SCALE As shown	Figure 4-6	

Appendix B

Photo Log

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/13/2015	Photo No. 1	Date & Time: Fri Mar 13 10:07:06 CDT 2015 Position: -030.06150° / -097.17094° Altitude: 465ft Azimuth/Bearing: 356° N04°W 6920mils (True) Elevation Angle: -08.1° Horizon Angle: -01.4° Zoom: 1X	
Direction Photo Taken: West			
Description: Typical vegetation structure in FMU 1.			

Date 3/12/2015	Photo No. 2	Date & Time: Thu Mar 12 15:13:16 CDT 2015 Position: -030.05578° / -097.16736° Altitude: 432ft Azimuth/Bearing: 090° S00E 1600mils (True) Elevation Angle: -11.4° Horizon Angle: -03.1° Zoom: 1X	
Direction Photo Taken: East			
Description: Typical vegetation structure in FMU 2.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No.: 25015345
Date 3/12/2015	Photo No. 3	<p>Date & Time: Thu Mar 12 14:10:23 CDT 2015 Position: 1030.05710° / -097.16894° Altitude: 456ft Azimuth/Bearing: 167° S13E 2969mils (True) Elevation Angle: -06.8° Horizon Angle: +02.3° Zoom: 1X</p>	
Direction Photo Taken: East			
Description: Typical vegetation structure in center of FMU 3.			

Date 3/13/2015	Photo No. 4	<p>Date & Time: Fri Mar 13 13:26:31 CDT 2015 Position: 1030.05636° / -097.17358° Altitude: 472ft Azimuth/Bearing: 095° S85E 1689mils (True) Elevation Angle: -13.2° Horizon Angle: -01.1° Zoom: 1X</p>	
Direction Photo Taken: Southeast			
Description: Typical vegetation structure in FMU 4.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No.: 25015345
Date 3/13/2015	Photo No. 5	<p>Data & Time: Fri Mar 13 10:34:13 CDT 2015 Position: +030.061049° -097.17168° Altitude: 455ft Azimuth/Bearing: 145° 335E, 2578mils (True) Elevation Angle: -12.1° Horizon Angle: -01.4° Zoom: 1X</p>	
Direction Photo Taken: Southeast			
Description: This is one (DD1) of the four observed drainages that has potential Houston toad habitat.			

Date 3/12/2015	Photo No. 6		
Direction Photo Taken: Southeast			
Description: This is one (DD2) of the four observed drainages that has potential Houston toad habitat.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/12/2015	Photo No. 7	<p>Date & Time: Thu Mar 12 09:59:37 CDT 2015 Position: 1030.05749° / -097.16660° Altitude: 393ft Azimuth/Bearing: 143° S37E, 2542mils (True) Elevation Angle: -13.2° Horizon Angle: +03.9° Zoom: 1X</p>	
Direction Photo Taken: Southeast			
Description: This is one (DD3) of the four observed drainages that has potential Houston toad habitat.			

Date 3/12/2015	Photo No. 8	<p>Date & Time: Thu Mar 12 13:38:23 CDT 2015 Position: 1030.05593° / -097.16817° Altitude: 448ft Azimuth/Bearing: 058° N58E, 1031mils (True) Elevation Angle: -18.6° Horizon Angle: +04.7° Zoom: 1X</p>	
Direction Photo Taken: Southeast			
Description: This is one (DD4) of the four observed drainages that has potential Houston toad habitat.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/13/2015	Photo No. 9	<p>Date & Time: Fri Mar 13 13:06:12 CDT 2015 Position: +030.05851° / -099.17180° Altitude: 474ft Azimuth/Bearing: 112° S68E 1901mils (True) Elevation Angle: -06.7° Horizon Angle: -01.8° Zoom: 1X</p>	
Direction Photo Taken: Southeast			
Description: Pond 1 is a small man-made detention pond north of Pond 2.			

Date 3/13/2015	Photo No. 10	<p>Date & Time: Fri Mar 13 13:06:31 CDT 2015 Position: +030.05344° / -097.17169° Altitude: 463ft Azimuth/Bearing: 149° S37E 2542mils (True) Elevation Angle: -02.7° Horizon Angle: -01.3° Zoom: 1X</p>	
Direction Photo Taken: Northwest			
Description: Pond 2 is a man-made detention pond located southwest of Lab 4 and is adjacent to FMU 3.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/13/2015	Photo No. 11	<p>Date & Time: Fri Mar 13 11:56:47 CDT 2015 Position: +030.05776° / -097.16831° Altitude: 433ft Azimuth/Bearing: 339° N27W 5920mils (True) Elevation Angle: -03.1° Horizon Angle: +02.6° Zoom: 1X</p>	
Direction Photo Taken: Northeast			
Description: Pond 3 is a detention pond that is located within FMU 2. Surface water runoff is designed to drain from FMU 3 through a culvert and down a drainage ditch into this pond. The detained water flows through an outfall pipe into DD3.			

Date 3/13/2015	Photo No. 12	<p>Date & Time: Fri Mar 13 12:30:00 CDT 2015 Position: +030.05781° / -097.16829° Altitude: 433ft Azimuth/Bearing: 084° N64E 1138mils (True) Elevation Angle: -19.5° Horizon Angle: +02.2° Zoom: 1X</p>	
Direction Photo Taken: Northeast			
Description: Outfall draining Pond 3 into DD3.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/12/2015	Photo No. 13	<p>Date & Time: Thu Mar 12 14:46:44 CDT 2015 Position: 30.05626° / -97.16916° Altitude: 464ft Azimuth/Bearing: 319° N41W 5671mils (True) Elevation Angle: -55.8° Horizon Angle: +00.7° Zoom: 1X</p>	
Direction Photo Taken: Down			
Description: A palustrine emergent wetland was observed within FMU3. This area exhibited a high water table, surface water, saturation, hydrophytic vegetation, and hydric soil.			

Date 3/12/2015	Photo No. 14	<p>Date & Time: Thu Mar 12 13:45:34 CDT 2015 Position: 30.05611° / -97.16862° Altitude: 456ft Azimuth/Bearing: 015° N15E 02627mils (True) Elevation Angle: -16.4° Horizon Angle: +00.3° Zoom: 1X</p>	
Direction Photo Taken: Northeast			
Description: A shallow drainage feature encircles FMU 3 and is directed through a concrete culvert under Circle Loop Road to Pond 3.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No.: 25015345
Date 3/13/2015	Photo No. 15	<p>Date & Time: Fri Mar 13 12:32:02 CDT 2015 Position: +030.05900° / -097.17492° Altitude: 479ft Azimuth/Bearing: 062° N062E 1100mils (True) Elevation Angle: -01.8° Horizon Angle: -01.2° Zoom: 1X</p>	
Direction Photo Taken: Northeast			
Description: Conference Center is located on the western edge of the MD Anderson Cancer Research campus.			

Date 3/13/2015	Photo No. 16	<p>Date & Time: Fri Mar 13 12:32:03 CDT 2015 Position: +030.05900° / -097.17492° Altitude: 480ft Azimuth/Bearing: 090° N090E 1600mils (True) Elevation Angle: -00.5° Horizon Angle: -01.2° Zoom: 1X</p>	
Direction Photo Taken: East			
Description: Lab 1 is located on the southwestern western edge of the MD Anderson Cancer Research campus.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No.: 25015345
Date 3/13/2015	Photo No. 17	<p>Date & Time: Fri Mar 13 13:05:18 CDT 2015 Position: +030.05856° / -097.17350° Altitude: 465ft Azimuth/Bearing: 355° N05°W 631ft (air) US Elevation Angle: +01.9° Horizon Angle: +00.3° Zoom: 1X</p>	
Direction Photo Taken: Northeast			
Description: Lab 2 is located on the south-central side of the MD Anderson Cancer Research campus.			

Date 3/13/2015	Photo No. 18	<p>Date & Time: Fri Mar 13 13:07:38 CDT 2015 Position: +030.05382° / -097.17120° Altitude: 465ft Azimuth/Bearing: 128° S32E 2276mils (True) Elevation Angle: +01.4° Horizon Angle: +01.7° Zoom: 1X</p>	
Direction Photo Taken: Southeast			
Description: Lab 4 is located on the southeastern edge edge of the MD Anderson Cancer Research campus.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No.: 25015345
Date 3/13/2015	Photo No. 19	<p>Date & Time: Fri Mar 13 13:47:25 CDT 2015 Position: +030.05940° / -097.17085° Altitude: 472ft Azimuth/Bearing: 253° S73W / 498mils (True) Elevation Angle: -02.2° Horizon Angle: -00.6° Zoom: 1X</p> 	
Direction Photo Taken: Northwest			
Description: The Physical Plant is located on the northeastern edge of the MD Anderson Cancer Research campus.			

Date 3/13/2015	Photo No. 20	<p>Date & Time: Fri Mar 13 12:50:28 CDT 2015 Position: +030.05919° / -097.17231° Altitude: 476ft Azimuth/Bearing: 099° N89E / 0685mils (True) Elevation Angle: +03.6° Horizon Angle: +01.8° Zoom: 1X</p> 	
Direction Photo Taken: Northeast			
Description: Lab 3 is located on the north-central side of the MD Anderson Cancer Research campus just west of the Physical Plant.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No.: 25015345
Date: 3/13/2015	Photo No.: 21	<p>Date & Time: Fri Mar 13 12:31:05 CDT 2015 Position: +030.05935° / -097.17337° Altitude: 495ft Azimuth/Bearing: 0x2° N12E 1200mils (True) Elevation Angle: -01.9° Horizon Angle: -00.2° Zoom: 1X</p>	
Direction Photo Taken: Northeast			
Description: A. Clark Griffin Research Facility, aka the animal facility, is located on the north-central side of the MD Anderson Campus.			

Date: 3/13/2015	Photo No.: 22	<p>Date & Time: Fri Mar 13 12:11:24 CDT 2015 Position: +030.05915° / -097.17256° Altitude: 470ft Azimuth/Bearing: 251° S74W 4482mils (True) Elevation Angle: -00.6° Horizon Angle: +00.6° Zoom: 1X</p>	
Direction Photo Taken: Southwest			
Description: The Lab 2 annex is located in north of Lab 2 and east of Lab 1.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/13/2015	Photo No. 23	<p>Date & Time: Fri Mar 13 12:31:23 CDT 2015 Position: +030.06383° / -097.17354° Altitude: 493ft Azimuth/Bearing: 272° N89W 4933mils (True) Elevation Angle: +00.6° Horizon Angle: +01.2° Zoom: 1X</p>	
Direction Photo Taken: Northwest			
Description: The office support building is located west of the Griffin building and north of Lab 1.			

Date 3/13/2015	Photo No. 24	<p>Date & Time: Fri Mar 13 12:32:12 CDT 2015 Position: +030.05970° / -097.17478° Altitude: 490ft Azimuth/Bearing: 006° N06E 0107mils (True) Elevation Angle: -03.8° Horizon Angle: +02.1° Zoom: 1X</p>	
Direction Photo Taken: East			
Description: The Guest House is located in the farthest northwestern corner of the MD Anderson Cancer campus.			

Client Name: MD Anderson Cancer Research Clinic		Site Location: Smithville, Texas	Project No. 25015345
Date 3/13/2015	Photo No. 25	 A photograph of a gas metering station. The station consists of grey metal pipes and valves. A prominent red valve is visible. A white warning sign is attached to the pipes, reading "WARNING NATURAL GAS METERING STATION NO SMOKING PLEASE DO NOT DRINKING 1-800-368-5848". Two red cylindrical bollards are positioned in front of the station. The background shows a wooded area with trees and a utility box on a post to the left.	
Direction Photo Taken: Southeast			
Description: Gas Metering Station that provides utility to the MD Anderson Campus.			

Appendix C

Eight-Step Decision Making Process

Executive Order (EO) 11988 – Floodplain Management Eight-Step Decision Making

Process EO 11988 (Floodplain Management) requires federal agencies “to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of the floodplain and to avoid direct or indirect support of floodplain development whenever there is a practical alternative.” This eight-step process is applied to the proposed MD Anderson Cancer Center (MDACC) Smithville Research Center Wildfire Mitigation Project. The proposed project involves hazardous fuels reduction on approximately 65 acres of the MDACC Smithville campus and improvements to campus buildings so they can better withstand impacts from wildfire. The steps in the decision-making process are as follows:

Step 1 Determine if the proposed action is located in the Base Floodplain A small portion of the vegetation management component of the proposed project (approximately .16 acres) would be conducted within the 100-year floodplain according to the Flood Insurance Rate Map (FIRM) 48021C0395E, dated January 19, 2006 (see Figure 4-3 of Appendix A). The proposed project would not result in the construction of any structures within the 100-year floodplain nor would it involve any fill or excavation within the floodplain.

Step 2 Early public notice (Preliminary Notice) A public notice soliciting comments on the draft EA for the proposed wildfire mitigation project, including the floodplain management portion, will be published in local newspaper and on FEMA’s website at <http://www.fema.gov/media-library/assets/documents>.

Step 3 Identify and evaluate alternatives to locating in the base floodplain Project alternatives are discussed in Section 3 of the EA. The no action alternative would not meet the purpose and need for the project and is not a practicable alternative. An alternative that would harden all the campus buildings and structures against wildfire threat was considered but eliminated from further review due to cost considerations. Only a small portion of the 65 acre project is located within the floodplain. No practicable alternatives outside the floodplain that address the purpose and need for the project exist.

Step 4 Identify impacts of proposed action associated with occupancy or modification of the floodplain

Impact on natural function of the floodplain

The proposed action would not affect the functions and values of the 100-year floodplain. The proposed action would not place any structures or fill within the floodplain that would impede or redirect flood flows nor would it result in any excavation. No structures would be constructed within the floodplain, and minimal soil disturbance would occur within the floodplain. The proposed action would not facilitate any development within the floodplain.

The functions of the floodplain to provide flood storage and conveyance, filter nutrients and impurities from runoff, reduce flood velocities, reduce flood peaks, moderate temperature of water, reduce sedimentation, promote infiltration and aquifer recharge, and reduce frequency and duration of low surface flows will remain intact after the implementation of this project. There will be minor short-term impacts to water quality during the implementation phase of the project. Floodplains also provide services in the form of providing fish and wildlife habitat, breeding, and feeding grounds. These floodplain values will not be significantly adversely impacted and the

overall integrity of the ecosystem will not be impacted. FEMA has determined the project may affect, but will not likely adversely affect the federally endangered Houston toad and will not adversely modify designated critical habitat. The proposed action would have negligible impacts to native species and their habitats and population levels of native species would not be affected. There is the potential for adverse impacts to migratory bird species if vegetation removal activities are conducted during the breeding season. The proposed action will not adversely affect the open space benefits provided by the floodplain in the project area.

The fuels reduction activities would reduce the potential for the negative effects of a major wildfire on soils if a wildfire occurs. A wildfire could alter the cycling of nutrients; the physical and chemical properties of soils; and the temperature, moisture, and biotic characteristics of the existing soils. In the event of a major wildfire, the rate of erosion could increase after heavy rains. These primary impacts from a wildfire could also result in decreased infiltration and increased runoff, which often causes increased erosion. These potential negative effects of a major wildfire on the natural floodplain functions would be reduced through implementation of the proposed action.

Impact of the flood water on the proposed facilities

The proposed action does not include any structures or facilities within the floodplain; therefore, no facilities would be affected by flood water in the floodplain of Hunt Branch. The proposed action also does not include any fill, excavation, or significant ground disturbance that could affect flood flows or elevations. Cut vegetation will not be left within the floodplain, although a 2 inch layer of mulch may be left in place. Potential floodwaters will not affect the project.

Step 5 Design or modify the proposed action to minimize threats to life and property and preserve its natural and beneficial floodplain values

The purpose of the proposed action is to reduce the Smithville Research Center's vulnerability to wildfires and mitigate the risk of a surface or crown fire from impacting the campus by reducing the fuels around and adjacent to the campus. No structures are or would be located in the floodplain as a result of the proposed project. The proposed hazardous fuels reduction would result in selective removal of vegetation from approximately 65 acres of forested areas on the MDACC campus with the intent to keep at least a 70 percent canopy cover in the densest areas. The proposed action would have no effect on the natural and beneficial values of the floodplain.

Many of the impacts discussed above are considered insignificant or beneficial to the floodplain. The proposed action to reduce fuel loads contributes to the conservation of the floodplain and its natural and beneficial values. Short-term water quality impacts will be mitigated by the implementation of BMPs.

Impacts to the federally endangered Houston toad will be mitigated by the avoidance and minimization measures outlined in the consultation with the U.S. Fish and Wildlife Service. Impacts to migratory bird species will be minimized by seasonal restrictions and requirements for biological monitoring if the proposed work must happen during migratory bird nesting season. For any work in the floodplain, MDACC will be required to coordinate with the local floodplain administrator and obtain any required permits prior to initiating work. All

coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.

Step 6 Determine if proposed action is practicable and re-evaluate alternatives

The proposed action would not expose any segment of the population to flood hazards because it does not include a housing component and will not facilitate development in the floodplain. The proposed action would not change the current flood hazard because it would not impede or redirect flood flows. The project would not disrupt floodplain values because it would not change water levels in the floodplain. Therefore, it is practicable to implement the proposed action within the floodplain. Alternatives consisting of locating the project outside of the floodplain or taking no action are not practicable because these alternatives would not reduce wildfire risks at MDACC Smithville campus. FEMA maintains that the proposed action alternative is the only practicable alternative to meet the purpose and need of the project. This section may be revised following public comment on the EA and this 8step evaluation if significant comments are received regarding floodplain impacts.

Step 7 Findings and public explanation (Final Notice)

Step 7 requires that the public be provided with an explanation of any final decision that the floodplain is the only practicable alternative. In accordance with 44 CFR §9.12, MDACC must prepare and provide a final public notice 15 days prior to the start of any hazardous fuels reduction activities in the floodplain. Documentation of the final public notice is to be forwarded to FEMA for inclusion in the permanent project files.

Step 8 Implement the action

Step 8 is the review of the implementation and post-implementation phases of the proposed action to ensure that the requirements stated in 44 CFR Part 9.11 are fully implemented. The proposed wildfire mitigation project will be conducted in accordance with applicable floodplain development requirements.

Appendix D

Texas Natural Diversity Database – Elemental Occurrences

Element Occurrence Record

Scientific Name: Anaxyrus houstonensis

Occurrence #: 1

Eo Id: 344

Common Name: Houston Toad

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G1

State Rank: S1

Federal Status: LE

Location Information:

Directions:

AN AREA BOUNDED BY STATE HIGHWAY 95 ON THE WEST, THE COLORADO RIVER ON THE SOUTH, 30 12'00" LATITUDE ON THE NORTH, AND 97 07' 30" LONGITUDE ON THE EAST

Survey Information:

First Observation: 1970

Survey Date: 1983

Last Observation: 2003

Eo Type:

Eo Rank: A

Eo Rank Date:

Observed Area: 70,000.00

Comments:

General Description: PLAIN DIVIDED BY SMALL STREAMS AND CREEKS; SANDY SUBSTRATE WITH LOBLOLLY PINE; TWO STATE PARKS AND SEVERAL IMPROVED ROADS ARE WITHIN THIS AREA; SEE TPWD PARK DIVISION FILES

Comments: THE HEALTHIEST POPULATION KNOWN, MANAGED FOR NO IMPACT BY TP& WD ON THE TWO STATE PARKS

Protection Comments: SUPPORT LEGAL STATUS

Management Comments: ENCOURAGE REINTRODUCTIONS, STUDY MINIMUM PRESERVE AREA NEEDS

Data:

EO Data: IN 1983, A LARGE POPULATION, 1,000 TO 1,500 INDIVIDUALS, REGULARLY OCCURRING; SOME HYBRIDS WITH BUFO VALLICEPS & BUFO WOODHOUSEI, BUT FEW TOADS EMERGE AS EARLY AS JANUARY OR FEBRUARY & MATE; EGGS DEPOSITED IN PONDS OR TEMPORARY POOLS OF WATER; SMALL RED * INDICATE TOADS LOCATED BY A LIMITED ROAD SURVEY IN 1993; 26 FEBRUARY 1999, 8, 11, 19 MARCH 1999, 1 APRIL 1999 TOADS CHORUSING

Reference:

Element Occurrence Record

Citation:

BROWN, L.E., ET. AL., 1983. AGENCY REVIEW DRAFT OF THE RECOVERY PLAN FOR THE HOUSTON TOAD (BUFO HOUSTONENSIS). USF& WS, ALBUQUERQUE, NM. 48PP.

PBS& J. 1999. RESULTS OF HOUSTON TOAD SURVEY AT TAHITIAN VILLAGE, BASTROP COUNTY, TEXAS. PREPARED FOR LCRA. JULY 1999.

PBS& J. 1999. RESULTS OF HOUSTON TOAD SURVEY AT THE PROPOSED GENTEX ELECTRIC GENERATION FACILITIES, BASTROP COUNTY, TEXAS. PREPARED FOR GEN TEX POWER CORPORATION. JUNE, 1999.

TEXAS DEPARTMENT OF TRANSPORTATION. 1993. HOUSTON TOAD MONITORING ALONG STATE HIGHWAY 21 FROM THE ENTRANCE OF BASTROP STATE PARK TO FM 1441. BASTRO COUNTY, TEXAS. 2 FEBRUARY-11 MAY, 1993.

BROWN, LAUREN E., 1971. NATURAL HYBRIDIZATION AND TREND TOWARD EXTINCTION IN SOME RELICT TEXAS TOAD POPULATIONS. SOUTHWESTERN NATURALIST 16(2):185-199.

QUINN, HUGH R. AND GREG MENGDEN. 1984. REPRODUCTION AND GROWTH OF BUFO HOUSTONENSIS (BUFONIDAE). S.W. NAT. 29(2): 189-195.

QUINN, HUGH. NO DATE. CURATOR OF REPTILES HOUSTON ZOOLOGICAL GARDENS PARKS & RECREATION DEPARTMENT PH-713/520-3208.

BROWN, L.E. 1975. THE STATUS OF THE NEAR EXTINCT HOUSTON TOAD (BUFO HOUSTONENSIS) WITH RECOMMENDATIONS FOR ITS CONSERVATION. HERP. REV. 6:37-40.

Specimen:

Element Occurrence Record

Scientific Name: Anaxyrus houstonensis

Occurrence #: 24

Eo Id: 4685

Common Name: Houston Toad

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G1

State Rank: S1

Federal Status: LE

Location Information:

Directions:

LCRA SIM GIDEON POWER PLANT PROPERTY, LAKE BASTROP, NORTH OF HIGHWAY 21, EAST OF LAKE BASTROP

Survey Information:

First Observation: 1994-03-15

Survey Date: 1999-02-26

Last Observation: 1999-02-26

Eo Type:

Eo Rank: E

Eo Rank Date: 1999-02-26

Observed Area:

Comments:

General Description: 1999 - SMALL POND SITUATED ON EDGE OF LOBLOLLY PINE STAND, SOILS - PATILO COMPLEX, TEMPERATURE 72.6 F. WITH RELATIVE HUMIDITY OF 78%

Comments: FEBRUARY, MARCH, AND APRIL 1999 TOADS WERE HEARD CHORUSING ON BASTROP STATE PARK AND ADJACENT PRIVATE LANDS

Protection

Comments:

Management

Comments:

Data:

EO Data: MARCH 1994, 8 TOADS OBSERVED; MAY 1994, 1 TOAD OBSERVED; FEBRUARY 1995, 3 TOADS OBSERVED AND CHORUSING; MARCH 1995, 1 TOAD OBSERVED AND CHORUSING; 3 APRIL 1995, 1 TOAD OBSERVED AND CHORUSING; 10 FEBRUARY 1999, 2 MALES OBSERVED CALLING FROM SMALL POND IN TRANSMISSION LINE RIGHT-OF-WAY EAST OF EXISTING SUBSTATION AND 1 TOAD CALLING FROM ROADSIDE DITCH ON ENTRANCE ROAD TO POWER PLANT; 26 FEBRUARY 1999, 1 MALE ON ENTRANCE ROAD TO POWER PLANT

Reference:

Citation:

PBS& J. 1999. RESULTS OF HOUSTON TOAD SURVEY AT THE PROPOSED GENTEX ELECTRIC GENERATION FACILITIES, BASTROP COUNTY, TEXAS. PREPARED FOR GEN TEX POWER CORPORATION. JUNE, 1999.

Specimen:

Element Occurrence Record

Scientific Name: Anaxyrus houstonensis

Occurrence #: 25

Eo Id: 2733

Common Name: Houston Toad

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G1

State Rank: S1

Federal Status: LE

Location Information:

Directions:

TAHITIAN VILLAGE, JUST EAST OF BASTROP, SOUTH OF HIGHWAY 71

Survey Information:

First Observation: 1999-03-19

Survey Date:

Last Observation: 1999-04-02

Eo Type:

Eo Rank: E

Eo Rank Date: 1999-04-02

Observed Area:

Comments:

General Description: 19 MARCH 1999, 60 DEGREES F., 96% RELATIVE HUMIDITY WITH OCCASIONAL LIGHT RAIN, FLOODED DITCH MEASURED 30'X5' WITH A DEPTH OF 3"-4"; 2 APRIL 1999, 73.7 DEGREES F., 92% RELATIVE HUMIDITY WITH LIGHT DRIZZLE THROUGHOUT NIGHT

Comments: 8, 11 MARCH 1999, CHORUSING HEARD AT BASTROP STATE PARK

Protection

Comments:

Management

Comments:

Data:

EO Data: 2316 CST 19 MARCH 1999, 2 MALE TOADS CALLING FROM DITCH; 2 APRIL 1999, 2 MALE TOADS CALLING FROM SAME DITCH AS MARCH OBSERVATION, 3 GULF TOADS ALSO PRESENT WITH A PAIR AMPLEXED, NO FEMALE HOUSTON TOADS OBSERVED, A CHORUS OF HOUSTON TOADS WERE ALSO HEARD CA. 0.25 AIR MILE NORTHEAST OF DITCH, NUMBER OF TOADS COULD NOT BE DETERMINED

Reference:

Citation:

PBS& J. 1999. RESULTS OF HOUSTON TOAD SURVEY AT TAHITIAN VILLAGE, BASTROP COUNTY, TEXAS. PREPARED FOR LCRA. JULY 1999.

Specimen:

Element Occurrence Record

Scientific Name: Crotalus horridus

Occurrence #: 3

Eo Id: 4054

Common Name: Timber (Canebrake) Rattlesnake

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G4

State Rank: S4

Federal Status:

Location Information:

Directions:

JUST NORTH OF COLORADO RIVER AND JUST EAST OF RAILROAD TRACK, RIVERSIDE DRIVE AND WAIKAKAAUA DRIVE, TAHITIAN VILLAGE, BASTROP

Survey Information:

First Observation: 2002-11-14

Survey Date:

Last Observation: 2002-11-14

Eo Type:

Eo Rank: E

Eo Rank Date: 2002-11-14

Observed Area:

Comments:

General Description: BASKING ON WARM GRAVEL AND SOILS OF ROAD

Comments: OBSERVER: PHILLIP MERINO, BASTROP COUNTY DEPARTMENT OF HEALTH, SANITATION AND ENVIRONMENTAL ENFORCEMENT; OBSERVATIONS MADE 0.1 AIR MILE JUST EAST OF PROPOSED NEW WATER TREATMENT FACILITY

Protection Comments:

Management Comments:

Data:

EO Data: ONE LARGE (ON RIVERSIDE DRIVE) AND ONE SMALL (ON WAIKAKAAUA DRIVE) RATTLESNAKE OBSERVED SUNNING/BASKING ON ROAD; TEMPERATURE WAS IN THE MID-80'S, FIRST SUNNY DAY AFTER SEVERAL DAYS OF HARD RAIN AND COOLER TEMPERATURES

Reference:

Citation:

MATHEWS, RAY. 2002. E-MAIL TO AMY SUGENO PERTAINING TO CROTALUS HORRIDUS OBSERVATION NORTH OF THE COLORADO RIVER, JUST EAST OF RAILROAD TRACK NEAR THE PROPOSED BASTROP COUNTY WATER TREATMENT PLANT SITE, BASTROP, TEXAS. DECEMBER 5, 2002.

Specimen:

Element Occurrence Record

Scientific Name: Crotalus horridus

Occurrence #: 11

Eo Id: 9386

Common Name: Timber (Canebrake) Rattlesnake

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G4

State Rank: S4

Federal Status:

Location Information:

Directions:

The entrance road to Bastrop State Park, Bastrop, Texas.

Survey Information:

First Observation: 2010-10-19

Survey Date: 2010-10-19

Last Observation: 2010-10-19

Eo Type:

Eo Rank: E

Eo Rank Date: 2010-10-19

Observed Area:

Comments:

General Entrance road to Bastrop State Park.

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 19 Oct 2010: A timber rattlesnake was found dead on the road. The snake was about 3 feet long.

Reference:

Citation:

Longoria, Meredith. 2010. E-mail of 21 October to Andy Gluesenkamp, TPWD herpetologist, regarding a timber rattlesnake observation in Bastrop State Park.

Specimen:

Element Occurrence Record

Scientific Name: Crotalus horridus

Occurrence #: 12

Eo Id: 9387

Common Name: Timber (Canebrake) Rattlesnake

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G4

State Rank: S4

Federal Status:

Location Information:

Directions:

Cardinal Lane, 1/2 mile south of Cardinal's dead end into Ponderosa Lane. Bastrop, Texas.

Survey Information:

First Observation: 2003-09-06

Survey Date: 2003-09-06

Last Observation: 2003-09-06

Eo Type:

Eo Rank: E

Eo Rank Date: 2003-09-06

Observed Area:

Comments:

General Description: Road in a neighborhood.

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: 6 Sep 2003: An individual of about 4 feet in length was seen crossing the road at night.

Reference:

Citation:

Brooks, Bill. 2003. E-mail of 8 September to Andy Price, TPWD herpetologist, regarding a timber rattlesnake observation in Bastrop County on 6 September.

Specimen:

Element Occurrence Record

Scientific Name: Monarda viridissima

Occurrence #: 1 **Eo Id:** 10338

Common Name: Texas beebalm

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2G3

State Rank: S3

Federal Status:

Location Information:

Directions:

2 mi E of Bastrop along St. Rt. 21.

Survey Information:

First Observation: 1968-09-10

Survey Date:

Last Observation: 1968-09-10

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: Complete specimen citation: 2 mi E of Bastrop along Route 21, 10 Sep 1968, D.S. Correll 36268 (holotype at TEX-LL).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Correll, D.S. (36268). 1968. TEX-LL.

Specimen:

Correll, D.S. (36268). 1968. TEX-LL. (S68CORTXTXUS)

Element Occurrence Record

Scientific Name: Monarda viridissima

Occurrence #: 2 **Eo Id:** 9979

Common Name: Texas beebalm

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2G3

State Rank: S3

Federal Status:

Location Information:

Directions:

Ca. 1.2 mi W of type location [which is "2 mi E of Bastrop along St. Rt. 21"], along Bastrop Co. Rd. 118 W of Hwy. 21.

Survey Information:

First Observation: 1994-09

Survey Date:

Last Observation: 1994-09

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments: Complete specimen citation: Ca. 1.2 mi W of type location, along Bastrop Co. Rd. 118 W of Hwy. 21, 30-40 plants observed, Sep 1994, B. L. Turner 94-114. Report from lit.: see Turner (1994), p. 78. Disposition unknown; not at TEX-LL (on loan?), Mar 1999.

Protection

Comments:

Management

Comments:

Data:

EO Data: 1994-09: 30-40 plants observed.

Reference:

Citation:

Turner, B.L. (94-114). 1994. TEX-LL.

Specimen:

Turner, B.L. (94-114). 1994. TEX-LL. (S94TURTXUS)

Element Occurrence Record

Scientific Name: Monarda viridissima

Occurrence #: 3 **Eo Id:** 10178

Common Name: Texas beebalm

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2G3

State Rank: S3

Federal Status:

Location Information:

Directions:

McDade.

Survey Information:

First Observation: 1940-10-06

Survey Date:

Last Observation: 1940-10-06

Eo Type:

Eo Rank: H

Eo Rank Date: 2006-12-07

Observed Area:

Comments:

General

Description:

Comments: Complete specimen citation: McDade, 6 Oct 1940, C. C. Albers 40021 (TEX-LL).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Albers, C.C. (40021). 1940. TEX-LL.

Specimen:

Albers, C.C. (40021). 1940. TEX-LL. (S40ALBTXTXUS)

Element Occurrence Record

Scientific Name: Monarda viridissima

Occurrence #: 4 **Eo Id:** 10486

Common Name: Texas beebalm

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2G3

State Rank: S3

Federal Status:

Location Information:

Directions:

Bastrop State Park.

Survey Information:

First Observation: 1931-11

Survey Date:

Last Observation: 1931-11

Eo Type:

Eo Rank: H

Eo Rank Date: 2006-12-07

Observed Area:

Comments:

General

Description:

Comments: Complete specimen citation: Bastrop State Park, Nov-Dec 1931, CCC Plant Project s.n. (TEX-LL).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

CCC Project (s.n.). 1931. TEX-LL.

Specimen:

CCC Project (s.n.). 1931. TEX-LL. (S31CCCTXTXUS)

Element Occurrence Record

Scientific Name: Monarda viridissima

Occurrence #: 5 **Eo Id:** 10063

Common Name: Texas beebalm

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2G3

State Rank: S3

Federal Status:

Location Information:

Directions:

Paige to McDade.

Survey Information:

First Observation: 1932-10-11

Survey Date:

Last Observation: 1932-10-11

Eo Type:

Eo Rank: H

Eo Rank Date: 2006-12-07

Observed Area:

Comments:

General

Description:

Comments: Complete specimen citation: Paige to McDade, 11 Oct 1932, B. C. Tharp 32101 (TEX-LL).

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Tharp, B.C. (32101). 1932. TEX-LL.

Specimen:

Tharp, B.C. (32101). 1932. TEX-LL. (S32THATXTXUS)

Element Occurrence Record

Scientific Name: Pinus taeda-quercus stellata-quercus marilandica/vaccinium arboreum series
Occurrence #: 1
Eo Id: 2179
Common Name: Loblolly Pine-post Oak-blackjack
Track Status: Track all extant and selected historical EOs
Oak/farkleberry Forest
TX Protection Status:
Global Rank: GNR
State Rank: S4
Federal Status:

Location Information:

Directions:

HIGHWAY 21, 2 MILES NORTHEAST OF BASTROP

Survey Information:

First Observation:
Survey Date: 1986-06-12
Last Observation: 1986-06-12
Eo Type:
Eo Rank: B
Eo Rank Date:
Observed Area: 3,500.00

Comments:

General Description: REMNANT OUTLIER OF EAST TEXAS PINEY WOODS; PRIMARILY POST OAK-LOBLOLLY-BLACKJACK OAK COMPLEX; PATCHY; DISTURBED THROUGHOUT

Comments: THIS OCCURRENCE IS IMPORTANT BECAUSE IT IS ON THE FAR WESTERN EDGE OF THIS COMMUNITY TYPE

Protection Comments:

Management Comments:

Data:

EO Data: SOME DATA ON IMPACT OF CAMPERS ON THE PINES IS IN PARKS DIVISION FILES; SOME HISTORICAL DATA AS WELL

Reference:

Citation:

DIAMOND, D.D., I. BUTLER, N.J. CRAIG, AND T. FOTI. 1986. A SURVEY OF THE POTENTIAL NATIONAL NATURAL LANDMARKS OF THE WEST GULF COASTAL PLAIN: BIOTIC THEMES. USDO, NPS, WASHINGTON, D.C.

MITCHELL, R. J. 1964. A QUANTITATIVE INVESTIGATION OF THE PERENNIAL VEGETATION OF BASTROP STATE PARK, TEXAS. M. A. THESIS, U. T., AUSTIN.

LODWICK, L. 1974. BASTROP STATE PARK VEGETATION ANALYSIS. UNPUBL. DATA, TPWD FILES.

WHITTAKER, R. H. 1977. VEGETATION DATA ON BASTROP PARK. UNPUBLISHED FIELD DATA SHEETS.

RANKIN, R. 1986. FIRE ECOLOGY OF THE LOST PINES. UNPUBL. REPORT BY ENVIRONMENTAL STUDIES CLASS. TEXAS GOVERNOR'S SCHOOL, BOX 42, COMFORT, TEXAS.

TEXAS PARKS & WILDLIFE DEPT. 1977. CHECKLIST OF PLANTS OF BASTROP STATE PARK. TPWD PARK DIVISION FILES, AUSTIN, TX.

DEMOS, E. K. 1975. THE ALLELOPATHIC POTENTIAL OF A PINE FOREST ECOSYSTEM IN CENTRAL TEXAS. PH.D. DISSER, U. T., AUSTIN.

McBryde, James B. 1933. The vegetation and habitat factors of the Carrizo sands. Ecological Monographs 3(2):247-297.

Element Occurrence Record

Scientific Name: Pinus taeda-quercus stellata-quercus
marilandica/vaccinium arboreum series

Occurrence #: 5 **Eo Id:** 2703

Common Name: Loblolly Pine-post Oak-blackjack
Oak/farkleberry Forest

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: GNR **State Rank:** S4

Federal Status:

Location Information:

Directions:

LOWER SLOPES ON EAST SIDE OF COPPERAS CREEK, BASTROP SP

Survey Information:

First Observation: **Survey Date:** 1990-04 **Last Observation:** 1990

Eo Type: **Eo Rank:** B **Eo Rank Date:**

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 1

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BASTROP STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Pinus taeda-quercus stellata-quercus
marilandica/vaccinium arboreum series

Occurrence #: 6 **Eo Id:** 2690

Common Name: Loblolly Pine-post Oak-blackjack
Oak/farkleberry Forest

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: GNR **State Rank:** S4

Federal Status:

Location Information:

Directions:

STONE SOILS ON HILLTOPS IN ARC CURVING NORTHEAST FROM WATER TOWER AT JUNCTION OF LOOP ROAD AND
PARK ROAD 1-C, BASTROP SP

Survey Information:

First Observation: **Survey Date:** 1990-04 **Last Observation:** 1990

Eo Type: **Eo Rank:** B **Eo Rank Date:**

Observed Area:

Comments:

General

Description:

Comments: COULD BE POST OAK-BLACKJACK OAK SERIES

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 3

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BASTROP STATE PARK. SUMMARY OF REPRESENTATIVE PLANT
COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Pinus taeda-quercus stellata-quercus
marilandica/vaccinium arboreum series

Occurrence #: 7 **Eo Id:** 5403

Common Name: Loblolly Pine-post Oak-blackjack
Oak/farkleberry Forest

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: GNR **State Rank:** S4

Federal Status:

Location Information:

Directions:

LOWER SLOPES, SOUTH SIDE OF PARK ROAD 1-C, NORTHWEST CORNER OF BUESCHER SP

Survey Information:

First Observation: **Survey Date:** 1989-12-05 **Last Observation:** 1990

Eo Type: **Eo Rank:** AB **Eo Rank Date:** 1989-12-05

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 1

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BUESCHER STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Pinus taeda-quercus stellata-quercus
marilandica/vaccinium arboreum series

Occurrence #: 8 **Eo Id:** 893

Common Name: Loblolly Pine-post Oak-blackjack
Oak/farkleberry Forest

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: GNR **State Rank:** S4

Federal Status:

Location Information:

Directions:

LOWER SLOPES AND RAVINE BOTTOM, SOUTH SIDE OF PARK ROAD 1-C, EAST SIDE OF COUNTY ROAD 365, EAST
END OF BASTROP SP

Survey Information:

First Observation: **Survey Date:** 1990-04 **Last Observation:** 1990

Eo Type: **Eo Rank:** B **Eo Rank Date:**

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 4

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BASTROP STATE PARK. SUMMARY OF REPRESENTATIVE PLANT
COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: *Quadrula houstonensis*

Occurrence #: 50

Eo Id: 9844

Common Name: Smooth Pimpleback

Track Status: Track all extant and selected historical EOs

TX Protection Status: T

Global Rank: G2

State Rank: S1S2

Federal Status: C

Location Information:

Directions:

Mussels were observed in the Colorado River downstream of Bastrop in the Pines & Prairies Land Trust Colorado River Preserve approx. 100-150 meters downstream of the railroad bridge. The directions were created by database staff.

Survey Information:

First Observation: 2006-02-22

Survey Date: 2006-02-22

Last Observation: 2006-02-22

Eo Type:

Eo Rank: E

Eo Rank Date: 2006-02-22

Observed Area:

Comments:

General

Description:

Comments: 22 Feb 2006: Survey was a random shoreline search.

Protection

Comments:

Management

Comments:

Data:

EO Data: 22 Feb 2006: Four valves ranging in condition from relatively-recently dead to very-long dead were collected.

Reference:

Citation:

Texas Parks and Wildlife Department. 2009. Spreadsheet of Texas Mussel Watch data, 1998-2009 and miscellaneous documents supporting these observations.

Specimen:

Element Occurrence Record

Scientific Name: Quercus stellata-quercus marilandica series

Occurrence #: 19

Eo Id: 6800

Common Name: Post Oak-blackjack Oak Series

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4

State Rank: S4

Federal Status:

Location Information:

Directions:

RIDGETOPS ALONG PARK ROAD 1, NORTHERN HALF OF BUESCHER SP

Survey Information:

First Observation:

Survey Date: 1989-11-18

Last Observation: 1989-12-07

Eo Type:

Eo Rank: B

Eo Rank Date: 1989-11-18

Observed Area:

Comments:

General Description: SOMEWHAT BRUSHY WOODLAND IN TIGHT TO LOOSE SANDY SOILS OVER WECHES FORMATION; GRADES INTO LOBLOLLY PINE-OAK SERIES

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 2

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BUESCHER STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Quercus stellata-quercus marilandica series

Occurrence #: 23

Eo Id: 4758

Common Name: Post Oak-blackjack Oak Series

Track Status: Track all extant and selected historical EOs

Global Rank: G4

State Rank: S4

Federal Status:

Location Information:

Directions:

UPLANDS ON TERRACE GRAVELS, INSIDE LOOP ROAD, SOUTH OF RESIDENCE, NORTH OF UTILITY LINE CLEARING, WEST END OF BASTROP SP

Survey Information:

First Observation:

Survey Date: 1990-04

Last Observation: 1990

Eo Type:

Eo Rank: BC

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 2

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BASTROP STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Quercus stellata-quercus marilandica series

Occurrence #: 24

Eo Id: 1345

Common Name: Post Oak-blackjack Oak Series

Track Status: Track all extant and selected historical EOs

Global Rank: G4

State Rank: S4

Federal Status:

Location Information:

Directions:

GRAVELLY/SANDY SOILS ON NEARLY LEVEL UPLANDS, EAST SIDE OF COUNTY ROAD 365, 0.1-0.7 MILE SOUTH OF PARK ROAD 1-C, BASTROP SP

Survey Information:

First Observation:

Survey Date: 1990-04

Last Observation: 1990

Eo Type:

Eo Rank: B

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 5

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BASTROP STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Paspalum plicatulum
- Sorghastrum nutans - Dichanthelium
oligosanthes - Paspalum setaceum -
Symphyotrichum pratense Alfisol Herbaceous
Vegetation

Occurrence #: 16 **Eo Id:** 11686

Common Name: Alfisol Coastal Prairie

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G1 **State Rank:** SNR

Federal Status:

Location Information:

Directions:

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Paspalum plicatulum
- Sorghastrum nutans - Dichanthelium
oligosanthes - Paspalum setaceum -
Symphyotrichum pratense Alfisol Herbaceous
Vegetation

Occurrence #: 17 **Eo Id:** 11687

Common Name: Alfisol Coastal Prairie

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G1 **State Rank:** SNR

Federal Status:

Location Information:

Directions:

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Paspalum plicatulum
- Sorghastrum nutans - Dichanthelium
oligosanthes - Paspalum setaceum -
Symphyotrichum pratense Alfisol Herbaceous
Vegetation

Occurrence #: 18 **Eo Id:** 11688

Common Name: Alfisol Coastal Prairie

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G1

State Rank: SNR

Federal Status:

Location Information:

Directions:

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Paspalum plicatulum
- Sorghastrum nutans - Dichanthelium
oligosanthes - Paspalum setaceum -
Symphyotrichum pratense Alfisol Herbaceous
Vegetation

Occurrence #: 19 **Eo Id:** 11689

Common Name: Alfisol Coastal Prairie

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G1 **State Rank:** SNR

Federal Status:

Location Information:

Directions:

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Schizachyrium scoparium - Paspalum plicatulum
- Sorghastrum nutans - Dichanthelium
oligosanthes - Paspalum setaceum -
Symphyotrichum pratense Alfisol Herbaceous
Vegetation

Occurrence #: 22 **Eo Id:** 11692

Common Name: Alfisol Coastal Prairie

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G1 **State Rank:** SNR

Federal Status:

Location Information:

Directions:

Survey Information:

First Observation:

Survey Date:

Last Observation:

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Sphagnum spp.-rhynchospora spp. series

Occurrence #: 49

Eo Id: 4812

Common Name: Sphagnum-beakrush Series

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4

State Rank: S2

Federal Status:

Location Information:

Directions:

ALUM CREEK DRAINAGE, CA. 1.4 CREEK MILES NORTH OF HWY 21 BRIDGE; CA. 1.3 MILES EAST, 2.0 MILES NORTH OF JUNCTION HWY 21 AND FM 1441, NORTHEAST OF BASTROP

Survey Information:

First Observation:

Survey Date: 1988

Last Observation: 1988

Eo Type:

Eo Rank: CD

Eo Rank Date:

Observed Area:

Comments:

General Description: WETLAND WITH SPHAGNUM-BEAKRUSH LIMITED TO NORTHWEST CORNER; BALANCE IS MUCKY AND DOMINATED BY SEDGES

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: NONE; NEEDS SURVEY

Reference:

Citation:

CARR, W.R. 1990. BRIEF DESCRIPTION OF "SAWICKI BOG," SMITHVILLE NW QUAD., BASTROP COUNTY, TEXAS.

Specimen:

Element Occurrence Record

Scientific Name: Spiranthes parksii

Occurrence #: 141

Eo Id: 8806

Common Name: Navasota ladies'-tresses

Track Status: Track all extant and selected historical EOs

TX Protection Status: E

Global Rank: G3

State Rank: S3

Federal Status: LE

Location Information:

Directions:

N of Buescher SP in the University of Texas Stengl Lost Pines Biology Station.

Survey Information:

First Observation: 2003-10-26

Survey Date: 2005-FA

Last Observation: 2004-10-23

Eo Type:

Eo Rank: E

Eo Rank Date: 2004-10-23

Observed Area:

Comments:

General Description: The habitat is old pasture/meadow with relatively minor variations in topography that, nonetheless, flood in most springs. The soil is sand over red clay. Officially this is Axtell fine sandy loam, 2 (Afc2), <5% slopes, eroded as per Baker, F.E. 1979 (Soil Survey of Bastrop County, TX, Soil Conservation Service, Washington, D.C.). The depressions hold enough water in the spring to support good colonies of moss and liverwort. *S. parksii* occurs on the edges of these moss-filled depressions in competition with pine seedlings, grasses, and *Rubus* canes.

Comments: Plants were not found in two nearby drainages. Dr. Jim Manhart of Texas A&M took samples from the 12 plants observed in 2004 for genetic research. No further data has been received from Dr. Manhart. Three dozen basal rosettes were observed in the spring of 2005, but only 4 *S. cernua* were observed in the fall.

Protection

Comments:

Management

Comments:

Data:

EO Data: 26 Oct 2003: One plant positively identified as *S. parksii* was observed. 23 Oct 2004: One plant positively identified as *S. parksii* with the possibility of 5 others also being *S. parksii*. Fall 2005: No *S. parksii* were observed.

Reference:

Element Occurrence Record

Citation:

Wendt, Tom. 2008. E-mail of 5 February to Sandy Birnbaum, Texas Natural Diversity Database manager, concerning *Spiranthes parksii* specimens at the University of Texas Herbarium.

Schappert, Phil. 2006. E-mails of 25 and 26 January to Sandy Birnbaum, Texas Natural Diversity Database manager, concerning *Spiranthes parksii* at the Stengl Lost Pines Biology Station in Bastrop County, TX.

Schappert, Phil. 2005. Endangered orchid a no-show this year. Lost Pines Nature Notes, Number 35.

Sheviak, Charles. 2004. E-mail of 13 December to Charmaine Delmatier, U.S. Fish & Wildlife Service botanist, concerning the positive identification of *Spiranthes parksii* at the Stengl Lost Pines Biology Station in Bastrop County, TX.

Schappert, Phil. 2004. E-mail of 21 September to Tom Dureka and others concerning *Spiranthes parksii* at Stengl Lost Pines Biology Station, Bastrop County, TX.

Unknown author. 2004. *Spiranthes parksii* recovery team meeting notes for 13 August 2003 and 13 July and 8 November 2004.

Schappert, Phil. 2004. E-mail of 27 October to Dr. Jim Manhart, Texas A&M University, concerning *Spiranthes parksii* at Stengl Lost Pines Biological Station, Bastrop County, TX and adjacent areas including Lee County.

Specimen:

University of Texas Herbarium, Austin, TX; Charmaine Delmatier et al. (#8659), Accession # 00445024, 18 Oct 2004, TEX.

Element Occurrence Record

Scientific Name: *Thamnophis sirtalis annectens*

Occurrence #: 13 **Eo Id:** 5791

Common Name: Texas Garter Snake

Track Status: Track all extant and selected historical EOs

Global Rank: G5T4 **State Rank:** S2

TX Protection Status:

Federal Status:

Location Information:

Directions:

LAKE BASTROP

Survey Information:

First Observation:

Survey Date:

Last Observation: 1979-05-12

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Reference:

Citation:

MCKINNEY, J. 1979. SPECIMEN # WTSU 6351, 12 MAY 1979. WEST TEXAS STATE UNIVERSITY.

Specimen:

West Texas A & M University Museum, Canyon. 1979. J. McKinney, Catalog # 6351 WTSU. 12 May 1979.

MCKINNEY, J. 1979. SPECIMEN # WTSU 6351. WEST TEXAS STATE UNIVERSITY. (S79MCKWTTXUS)

Element Occurrence Record

Scientific Name: Ulmus crassifolia-celtis laevigata series

Occurrence #: 26 **Eo Id:** 5898

Common Name: Cedar Elm-sugarberry Series

Track Status: Track all extant and selected historical EOs

Global Rank: G2G3 **State Rank:** S4

TX Protection Status:

Federal Status:

Location Information:

Directions:

TERRACES ALONG HUNT BRANCH ABOVE BUESCHER LAKE, BUESCHER SP

Survey Information:

First Observation:

Survey Date: 1989-11-18

Last Observation: 1989-12-07

Eo Type:

Eo Rank: D

Eo Rank Date: 1989-11-18

Observed Area:

Comments:

General Description: BOTTOMLAND DECIDUOUS FOREST; OCCURS AS TINY REMNANTS IN DEVELOPED PORTION OF PARK

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 3

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. BUESCHER STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:
