

September 25, 2006

To: Ron Hanke, Acting Director, Facilities and Planning

From: John Skvoretz, Dean, College of Arts and Sciences; Elizabeth Bird, Chair, Anthropology; Erin H. Kimmerle, Anthropology; Kathy Borman, Anthropology.

Subject: Proposal for Forensic Science Outdoor Land Use

1. Contact person:

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The purpose of this proposal is to seek permission for use of an outdoor space for multi-disciplinary forensic science research, education, and professional development. The space being requested for use is located in the USF Ecological Research Area, north of Fletcher Avenue. Entry into the area is located at the main South Gate and is accessible from Fletcher Ave. The area we propose to use is located along the dirt roads that extend north and east from the gate. Refer to sections 4 and 5 of this proposal and the attached map for more details on the specific area requested.

2. Description of Project Alignment with USF Mission and Purpose of Project:

Forensic science touches our lives in many ways, from solving a murder to investigating food contamination, or protecting endangered species. The use of an outdoor area for forensic science is invaluable to the Tampa Bay community, as there is a great need for research and education in the forensic sciences. The goals of this initiative are to:

1. Provide a platform for multi-disciplinary research in the application of science to forensic issues by a team of USF scientists in collaboration with professionals from the local community. Availability of the land is essential in order to submit a proposed \$3 million NSF G-K12 Grant. This grant will train selected graduate fellows in interdisciplinary research science methodology, which will be translated into further training of public school science teachers, thus furthering USF's research and community engagement missions.
2. Establish an outdoor space to provide hands-on training in scientific research and crime scene investigations for graduate fellows, local professionals, and science educators, in keeping with USF's education and community engagement missions.

Research:

The proposed plan will build upon the University of South Florida's excellence in the social, biological, geological, and earth sciences by constructing teams of students and their mentors committed to the interdisciplinary enterprise of applying science to legal issues such as missing persons. The plan builds on USF's unique strengths in applied research and problem-solving strategies. This project will result in cutting-edge method development, evaluations of technology, and the quantification of local variants in estimating the post-mortem interval. For example, this facility would enable such research as: decomposition rates of tissues and fibers; comparative techniques for locating, mapping, and exhuming remains from various contexts including surface and sub-surface clandestine burials; the accuracy of geophysical technologies used to locate clandestine graves, analysis of soil chemistry to estimate decomposition rates; and the use of local entomology and botany species in estimating the post-mortem interval.

Education:

An outdoor research area will allow for advanced training in scientific research methods and actual crime scene investigations and forensic archaeology for a variety of student and professional audiences.

Training in crime scene investigation focuses such topics as: how to recognize, document and collect evidence with practical hands-on learning through experimentation and physical evidence processing, procedures for the collection and analysis for physical evidence, concentrating on evidentiary significance of items commonly accounted as crime scenes, but are relatively not visible. Emphasis is placed on the importance of scientific methods and techniques used in the examination of physical evidence at crime scenes. Practical applications reinforce classroom discussions and lectures.

Workshops are designed for graduate fellows, law enforcement investigators, scene personnel, criminalistics, and forensic science students and secondary teachers so that they can learn more about the forensic aspects of medicolegal death investigations, forensic science, and forensic archaeology. The goal is to train the attendees to develop skills in forensic archaeology by expanding the attendees' base knowledge in death scene protocol, legal considerations, and field methods. The workshops will also focus on new developments in forensic science and related technologies. The workshops will provide an in-depth, practical, and hands-on experience on matters of finding, recovering and identifying clandestine graves and surface remains.

Service and Community Engagement:

This project will have at least four major impacts in the areas of service and community engagement:

1. Graduate fellows will receive support from a committed team of USF scientists, area teachers, and local professionals in the medico-legal community such as crime scene officers at the Tampa Police Department. As a result, the fellows will be prepared to

provide leadership in community outreach, curricular development, and professional work.

2. This work will result in the creation of a set of partnerships between USF, the Tampa Police Department, Hillsborough County Medical Examiner's Office, and Hillsborough County Schools designed to enhance the quality of educational learning opportunities. Over the past year, USF faculty and students from Anthropology and Geology have assisted the Cold Case Unit of the Tampa Police Department and Hillsborough County Medical Examiner's Office in local cases of missing and unidentified persons. This project formalizes these relationships and helps to build partnerships between USF and the local medico-legal community.
3. This project provides a valuable service to the community for professional development, where currently this training is not available locally.
4. The results will be widely disseminated not only to the academic community but also directly to educators, policy makers, and local professionals.

3. Campus: (check one)

- Tampa
- Sarasota
- St. Petersburg
- Lakeland

4. Physical Boundaries (Refer to map, attachment)

5. Acreage: 24 one meter squares (sub-surface) and 12 meter squares on the surface, spread along the northern and eastern roads.

6. Scope of Project and Funding Source:

A) Scope of Project

This project will bring forensic experts, USF scientists, and community educators together for multi-disciplinary research and education in the forensic sciences. The use of the land will include the creation of surface and subsurface mock crime scenes. Scenes are staged using plastic skeletons and pigs as model corpses. Deceased pigs, donated from the USF College of Medicine, are buried in 1 x 1 x 1 meter pits or placed on the ground surface to naturally decompose. The use of pig corpses for forensic research and education is well established throughout the United States and Florida. The pig corpses are obtained through Dr. Don Hilbelink, Department of Pathology and Anatomy, USF College of Medicine. The pigs are deceased prior to us taking custody of them. The use of their remains has been received IRB approval through the College of Medicine.

During the course of one year, up to five workshops will take place over the course of one week periods between the months of October-March. For each workshop, up to five mock graves will be excavated and five surface scenes will be investigated. A workshop of this size would have 20 participants, plus instructors. Following exhumation of the mock graves, the

remains will be re-interred to “set the stage” for the next workshop. We propose, to bury a total of 24 corpses over the first year and set out twelve sets of remains on the ground surface, continuously over the period of one year. We are seeking permission to use this site for three years. The number of burials and surface remains will be evaluated annually. Burial pits are reused, therefore in subsequent years fewer new burials will need to be added.

During the course of a workshop, participants will spend time at the outdoor facility, engaging in different activities such as: collecting insects from the decomposing remains, mapping the location of the remains, searching the ground surface by walking over the area to locate remains that may become naturally scattered due to wind, rain and animal activity, and excavating burials. Technologies such as ground penetrating radar and GIS mapping will also be demonstrated. Burial pits are filled in at the end of the excavation. Pig corpses are re-interred and therefore waste management is controlled.

Through the course of research, regular observation of surface remains as they decompose will occur to document and photograph changes. Insect and soil samples will also be collected at timed intervals. Finally, technologies may be tested, such as ground penetrating radar to detect buried graves.

B) Funding

Funding will be provided through two separate means; 1) an NSF G-K12 Grant, and 2) Professional Development Workshop fees.

1. A multidisciplinary G-K12 NSF Grant, “Providing Access to Research in Archaeology, Biology, Earth and Environmental Sciences”, is designed to combine the strengths of applied science research in anthropology and archaeology, biology, environmental science and policy, geography, geology, and engineering. It will provide graduate student fellows with experiences in team building, public outreach, curriculum development, and active research on-site with public school students, many of whom are underserved in science, and their teachers. It is designed to facilitate opportunities for professional development for Hillsborough County (Florida) Public School teachers and hands-on research experience for their students. Graduate fellows, USF students, and area teachers are participants for some of the planned workshops.

2. In addition to providing advanced training for graduate fellows and area teachers, workshops will also be designed for professional development aimed towards serving local law enforcement and professional forensic specialists who seek advanced training in forensic archaeology and outdoor crime scene investigation. The workshops aimed for professional development will not be funded through the G-K12 NSF grant. Rather, the professional rate for these workshops is \$595.00 per participant. Workshops may host 20 participants. This proposal seeks two professional development workshops a year which could raise up to \$23,800.00 annually to cover the expenses associated with the maintenance and development of this program, such as professional speaker fees and laboratory and field equipment, supplies, and teaching resources. These workshops would be run through the Center for Applied Anthropology, which has an Educational Business Account (EBA) designed for this type of service.

Impact on Natural or Cultural Resources:

Staged or mock crime scenes are the most effective when there is little evidence of disturbance. Therefore the impact of this project to the landscape is minimal. Great effort is made not to disturb the natural setting. Further, the use of land for this research and planned workshops does not alter it in any way that would prohibit future use of any sort. Our proposal is to use small areas of land along the northern and eastward roads that exhibit 'natural' clearings. We will avoid the areas currently under use for research in the Biology or other departments and have submitted a proposal for use of the Ecological Area to the Biology Department. We will also avoid heavily vegetated areas and Gopher Turtle dens. We will not cut down trees or otherwise disturb thick areas of vegetation. Finally, within the Ecological area are several known archaeological lithic sites (refer to attached map). Graves will be created using proper archaeological techniques. Any artifacts found will be catalogued and added to the Florida Master Site File. If any significant artifacts or features are found, we will work around the area.

Equipment Needs:

Excavation equipment to bury and exhume mock corpses, research supplies, and laboratory equipment for processing materials and preserving evidence for teaching collections will be purchased through the NSF grant and through the revenue raised for professional development workshops.

Maintenance Needs:

The site will not require additional maintenance as a result of this project. Students and researchers who participate in this project may park along the road inside the ecological area.

7. Impact to Campus Master Plan:

The USF Ecological Area is currently protected land designated for research and education and under the oversight of the Biology Department. The proposed research and education related to the forensic sciences has minimal impact to the area and does not alter it in any way that would prohibit or modify future use.

