

## ENVIRONMENTAL SYSTEMS

### ENDANGERED SPECIES

Roughly half of the UTSA Main Campus consists of karstic terrain of the Edwards Aquifer recharge zone. These areas are also designated by the U.S. Fish and Wildlife Service (USFWS) as Zone 1 with respect to endangered karst invertebrate habitat. Zone 1 is defined as “areas known to contain listed invertebrate karst species” according to the most recent Bexar County karst zone map available on the USFWS Web site. A portion of the East Campus Green Reserve has also been designated as critical habitat for karst species known from Mastodon Pit cave and other related karst features. The critical habitat designation recognizes the potential for undiscovered habitat localities within the campus boundaries. Future construction activities, especially those involving excavation, have the potential to adversely affect both the Edwards Aquifer and endangered species habitat. UTSA has recently been identified as a “responsible party” in the recovery implementation schedule of the draft recovery plan for the Bexar County karst invertebrates, released for public comment in March 2008.

Potentially suitable endangered species habitat has not been observed on the UTSA Park West property. While UTSA Park West lies within the boundaries of the recharge zone, the underlying lithology is Del Rio Clay and Buda Limestone, causing it to function as a contributing zone within the recharge zone. Proper stormwater engineering (designed in accordance with an approved Water Pollution Abatement Plan) should be sufficient to meet state water quality regulations intended to minimize water quality impacts of the proposed development of the property.

At least three caves located on the East Campus are known to contain endangered karst invertebrates including *Rhadine exilis*, a troglobitic ground beetle, and *Cicurina madla*, a troglobitic spider. These caves oc-

cur within a zone containing other significant recharge features where both water quality and ecological conditions should remain undegraded to avoid environmental impacts and associated regulatory liability.

In general, the development philosophy of the Campus Master Plan is to maintain and expand, where practical, existing green space and to increase density of development in the Central Campus to make the future campus more walkable and less vehicle oriented. The proposed Long Range Plan for the Main Campus avoids impacting areas known to contain endangered karst invertebrate species on the East Campus by establishing a Green Reserve east of a tributary of Leon Creek, which includes a potential karst preserve. This avoidance area corresponds to the largest of three conceptual karst preserves identified based on an assessment of UTSA’s Endangered Species Act and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program compliance options (see Figure 1).

This approach is believed to best conserve the water quality and biological diversity attributes of the Main Campus. By avoiding the previously unimpacted sensitive recharge features (as defined by TCEQ criteria) and confirmed locations for endangered karst invertebrates, the Long Range Plan reduces regulatory liability for new construction in the East Campus Green Reserve under state and federal law. By largely avoiding impacts to this area, permitting for adjacent areas should be relatively streamlined, and the Green Reserve will be maintained as an aesthetic and environmental asset that few urban campuses can claim. By avoiding the duplication of power, heating, and cooling facilities on the East Campus, the Long Range Plan also likely reduces the carbon footprint of the campus. The proposed greening of the West Campus could provide a significant benefit to underlying karst features located there as well.

The Campus Master Plan does not entirely avoid potential impacts. This is largely due to the fact that the subsurface characteristics of karst terrain are unpredictable. The potential for undiscovered karst invertebrate habitat exists in some parts of the campus not included in the Green Reserve. Much of the existing campus was built on outcrops of the Edwards Limestone prior to any of the current regulatory constraints. New development and redevelopment in these areas has the potential to expose karst voids (some voids have been encountered during excavation for foundations of newer campus buildings). While any endangered species habitat remaining in these is not likely to benefit the species on the path to recovery (as the Green Reserve could), there is no grandfathering from the Endangered Species Act.

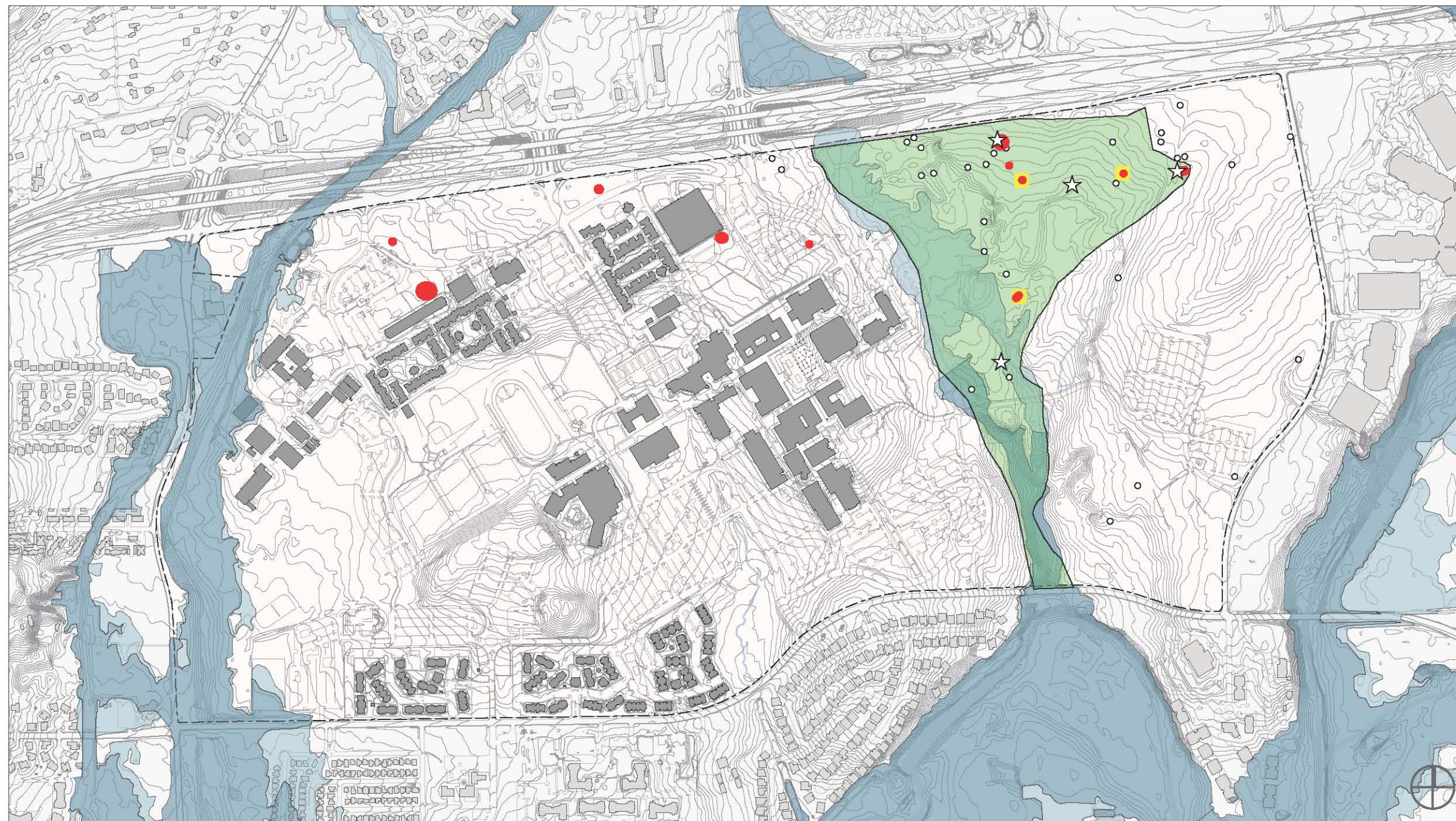
Evidence of potential undiscovered habitat can be seen in the form of several significant sinkholes within the West Campus. One collapsed sinkhole measuring approximately 20 yards in diameter occurs just north of Chisholm Hall. Another occurs a few feet from the eastern corner of the North Garage. A third occurs in a parking island west of John Peace Boulevard near Bartlett Cocke Drive. Whether additional features with surface expression were covered during the early development of campus is unknown, but it seems likely. Increasing density on the West Campus is the environmentally preferable alternative to sprawling across into the East Campus, but it is not without risks.

UTSA should continue the development of an Environmental Assessment/Habitat Conservation Plan (EA/HCP) (also known as an Incidental Take Permit or 10(a) Permit) or other compliance strategy for future development of the campus. Preliminary meetings with the USFWS and the UTSA Endangered Species Act Compliance Team occurred between 2003 and 2005. An EA/HCP is currently the only way

to attain legal protection in the event of encountering previously undiscovered endangered species habitat during construction. The Campus Master Plan lays the groundwork for a relatively easy permit process.

The “Shops at La Cantera” development, located immediately across Loop 1604, was developed under the only karst Environmental Assessment/Habitat Conservation Plan in Bexar County. Their process was lengthened and complicated because the proponents chose to mitigate impacts mostly with off-site habitat acquisition rather than avoiding impacts on-site. Similar to UTSA, La Cantera had three known karst invertebrate caves. One was sealed and the other two were left in isolated one-acre preserves. As a consequence, their permit required the acquisition of nearly 200 acres of off-site habitat to mitigate the take of all three on-site caves and to cover them in the event of the discovery of additional habitat during construction. This came at the expense of more than three years of study and permit preparation and several million dollars for land acquisition and endowment of a preserve maintenance and monitoring fund. By contrast, the Green Reserve will avoid almost all potential impacts to known habitat while providing on-site mitigation sufficient to cover any construction-related contingency elsewhere on campus.

The environmental regulatory climate in San Antonio has evolved rapidly since the endangered listing of the karst invertebrates in 2000. In 2008 a growing amount of media coverage of development and endangered species issues around Camp Bullis Military Reservation and ongoing lawsuits over transportation projects has put the spotlight on Endangered Species Act compliance and aquifer issues. Other options are possible, but the recommended karst preserve is believed to be the best way for the University to satisfy environmental regulations as it develops.



**FIGURE 1**  
*Proposed Karst Preserve and Other Environmental Features of the Central and East Campuses.*

*Features are not shown to scale.*






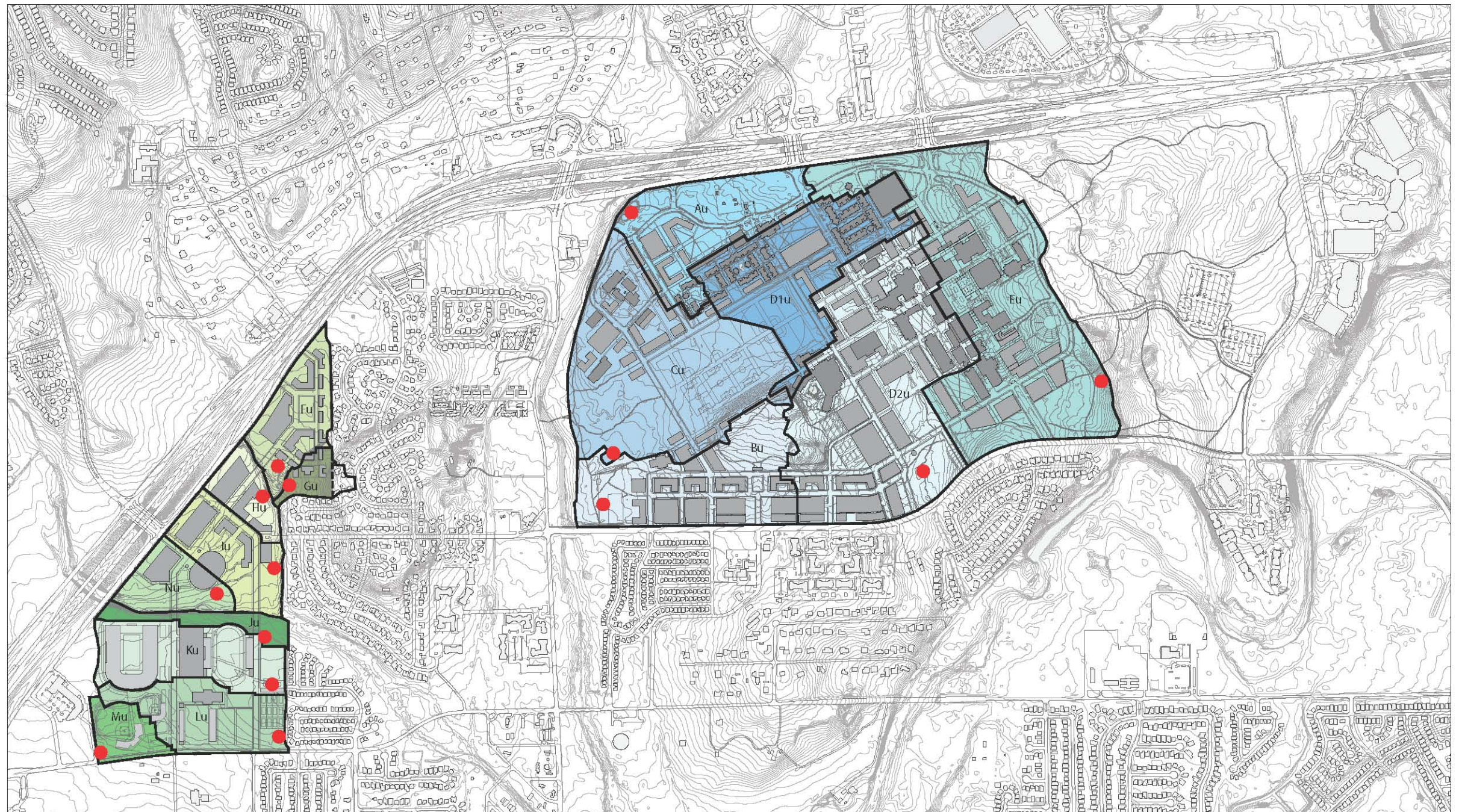
-  *Endangered Species Site*
-  *Sensitive Recharge Feature*
-  *Less-Sensitive/Non-Sensitive Feature*
-  *Sinkhole*
-  *Karst Preserve*
-  *100-year Floodplain*
-  *500-year Floodplain*

FIGURE 1  
TCEQ Basin Areas for UTSA Main Campus

Proposed UTSA Basin Areas ●



**WATER QUALITY**

Both the UTSA Central Campus and UTSA Park West are located over the Edwards Aquifer recharge zone, where sinkholes, caves, faults, and fracture zones transmit surface runoff into the subsurface. The southeast corner of the Central Campus is designated by the Texas Commission on Environmental Quality (TCEQ) as a “contributing zone within a transition zone,” since surface runoff leaving this part of campus drains to Leon Creek where other exposures of the Edwards Aquifer recharge zone occur. Development on these sites must therefore adhere to the Edwards Aquifer Rules (30 TAC Chapter 213) which regulate construction activities having the potential for polluting the Edwards Aquifer and associated surface waters. The goal is to protect existing and potential uses of groundwater and to maintain Texas Surface Water Quality Standards. The activities addressed by these regulations are those that pose a threat to water quality. Permanent Best Management Practices (BMPs) are those measures that are used to control pollution from

regulated activities after construction is complete. Under these rules, permanent BMPs are implemented to reduce pollution of surface water or stormwater that originates on site or upgradient from the site and flows across the site. They must prevent the pollution of surface water downgradient of the site, including pollution caused by contaminated stormwater runoff from the site. Stormwater runoff from all impervious surfaces is considered contaminated.

Many of the improvements to the Central Campus were grandfathered, and for many years the University pursued water quality filtration measures on a case-by-case basis. These consisted primarily of vegetative strips. The Environmental Master Plan dated October 2006 indicates a general movement toward a more regional approach to filtration of runoff.

There are numerous existing permanent BMPs located on the Central Campus which provide the protection needed for the existing campus. These BMPs are in the form of grass filter areas and sand filter basins.

All new construction within the Central Campus and at UTSA Park West will need to provide additional protection for the campus to satisfy the Edwards Aquifer Rules.

Geographically, the Central Campus is divided into five watersheds that can be identified as the Au, Bu, Cu, Du1/Du2, and Eu watersheds. UTSA Park West is divided into nine watersheds that can be identified as the Fu, Gu, Hu, Iu, Ju, Ku, Lu, Mu, and Nu watersheds.

The central watershed contains a recently approved sand filtration basin identified as the Ximenes Regional Filtration Basin. This basin provides filtration of stormwater runoff of 11.0 acres from an existing 14.40 acre Parking Lot 5 which is grandfathered from the Edwards Aquifer Rules.

This Campus Master Plan will significantly alter the Central Campus portion of the Main Campus, replacing existing surface parking lots with buildings and

green space. This will mean that many of the improvements that have been grandfathered will be replaced. TCEQ desires that as this occurs, the University move toward a more regional approach to filtration or runoff. A strategy for moving in this direction is depicted in this plan.

It is desirable that filtration ponds be designed such that they may be added to over time. This is particularly important in watershed areas that develop over long periods of time. In addition, for certain filtration ponds it is desirable to present as natural an appearance as possible; most notable in this regard is the pond to the west of Edward Ximenes Avenue. Others, such as the proposed ponds along Hausman Road at UTSA Park West, should be screened from the road by trees.

**FIGURE 2**  
*Existing natural drainage area west of Edward Ximenes Avenue, UTSA Main Campus*

**FIGURE 3**  
*The Northwest Basin, UTSA Main Campus*



2



3