

## MECHANICALLY AUGMENTED CULTURAL RESOURCES SURVEY FOR MIXED-USE DEVELOPMENT

### PROJECT OVERVIEW

ESE conducted an intensive mechanically augmented cultural resources survey and limited testing program for a 468-acre tract planned for mixed-use development including residential, commercial, and utility infrastructure. The objective was to complete proactive due diligence, identify significant cultural resources, and provide clear recommendations that would allow development to proceed while ensuring compliance with applicable state and federal preservation standards.

### CHALLENGES

The tract consisted of active ranch land with multiple ponds, historic agricultural improvements, creek corridors, and areas of deep alluvial soils with moderate archaeological potential. Planned development would transition portions of the property into infrastructure subject to future state jurisdiction, increasing the importance of completing defensible investigations in advance. Early fieldwork identified multiple historic resources and a previously unknown prehistoric site, and subsequent testing revealed the presence of a deeply buried aboriginal burial and stratified cultural deposits. The discovery required immediate coordination, specialized expertise, and careful evaluation to balance preservation obligations with project delivery timelines.

### ESE'S APPROACH

ESE designed a phased investigation strategy that exceeded Texas minimum standards and integrated mechanical trenching, auger testing, shovel testing, and multisensor geophysical survey to evaluate both horizontal and vertical site integrity. Initial reconnaissance and systematic testing identified multiple cultural resources and areas of elevated archaeological sensitivity. Upon discovery of the burial, ESE coordinated appropriate notifications and retained a bioarchaeological specialist to assess the interment. A second phase of fieldwork included close-interval grid testing and intensive Ground Penetrating Radar and magnetometer surveys to delineate site boundaries and identify additional buried features. Geophysical anomalies were ground-truthed through controlled excavation, revealing intact cultural horizons, thermal features, faunal remains, lithic artifacts, and deeply stratified occupation surfaces associated with Archaic period use. Testing also identified a probable bison kill and processing locality and several historic-era resources across the broader tract. All investigations were documented with full spatial control, stratigraphic recording, and artifact analysis to support eligibility determinations.

### RESULTS

Survey and testing efforts resulted in:

- Documentation of six previously unrecorded cultural resource sites
- Identification of a rare and well-preserved aboriginal burial
- Discovery of deeply stratified prehistoric occupation surfaces
- Evaluation of historic agricultural and ranching features
- Clear delineation of areas requiring avoidance

The burial site was determined eligible for inclusion in the National Register of Historic Places under Criterion D due to its research potential and level of preservation, and avoidance was recommended and incorporated into development planning. Additional prehistoric components were also found to have research value, while historic sites were evaluated and determined ineligible for listing. Portions of the tract not containing significant deposits were recommended for clearance.

### PROJECT IMPACT

Large-scale development projects require clarity early in planning to avoid costly redesign and regulatory delays. Through phased investigation, advanced geophysical methods, and responsive coordination following a sensitive discovery, ESE provided defensible eligibility determinations and practical avoidance strategies that allowed development planning to proceed while preserving significant cultural resources. This project reflects ESE's Texas First approach by pairing technical rigor with thoughtful stewardship and delivering solutions that protect heritage while supporting responsible growth.