

Creating a Geographical Information System (GIS) Database for Documenting Historical Structures at Rancho La Union Ranch, Zapata County, Texas

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ABSTRACT

As one of the oldest continuously operating ranches in South Texas, Rancho La Union contains several historical structures of significance. It is critical that these historical structures are documented digitally and mapped for documentation and preservation purposes. This project involved the design and creation of a geodatabase and reference map that can be added to in the future and allow prospective visitors to view and read about historical building and structures from a website. The design of the geodatabase included defining the domains and subtypes for roads, buildings, and a corral, as well as digitizing the roads, corral, dam, and buildings on the ranch property. The final map (a GeoPDF) created in the project will aid in identifying the location of the historical ranch in South Texas, as well as key structures that have existed for over 150 years on the property, such as the corral and bunkhouse.

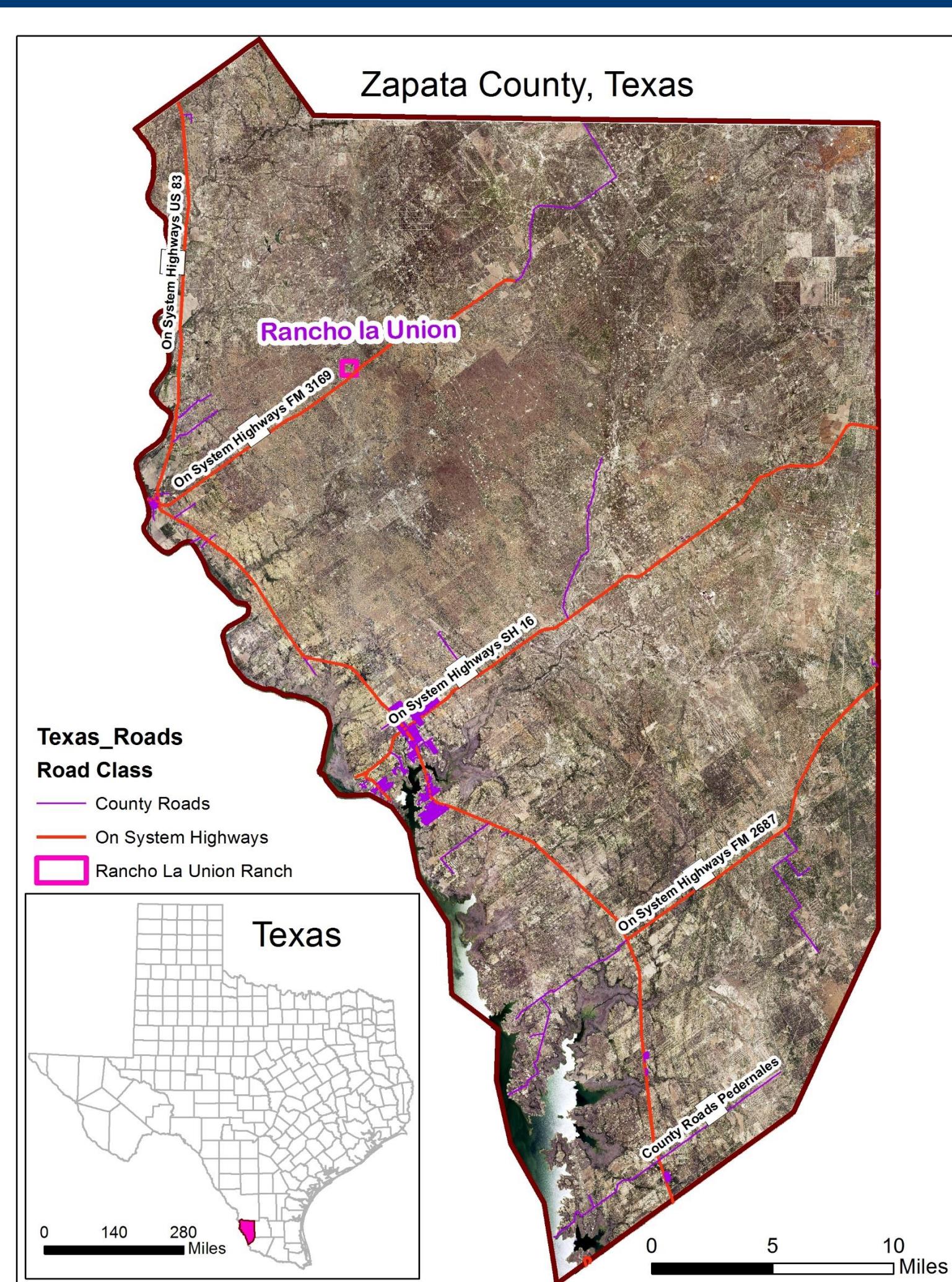


Fig. 1: Location map of study area

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INTRODUCTION

- Rancho La Union is one of the oldest continuously operating ranches in the South Texas region. The ranch contains several key historical structures that date back to the early 1800's, predating both the State of Texas and the Republic.
- It is critical that these historical structures are documented and preserved digitally through photos and GIS techniques.
- The creation of a GIS database allows for a spatial preservation of both structure location and photo documentation.

OBJECTIVE

- The principal objective of this project was to create a geodatabase for storing and documenting information about historical structures within the Rancho La Union ranch in South Texas.

METHODS

- Download basemap from Google Earth
- Georeferencing of Google Earth image (ArcGIS 10.3)
- Design the geodatabase: Domain and subtypes for roads, buildings, and the corral (see diagram)
- Digitize the roads layer
- Digitize (heads up) the corral, dam structure and buildings



Fig. 2: Photos of historical structures at Rancho La Union

METHODS

Schematic flow diagram of methods used in this research

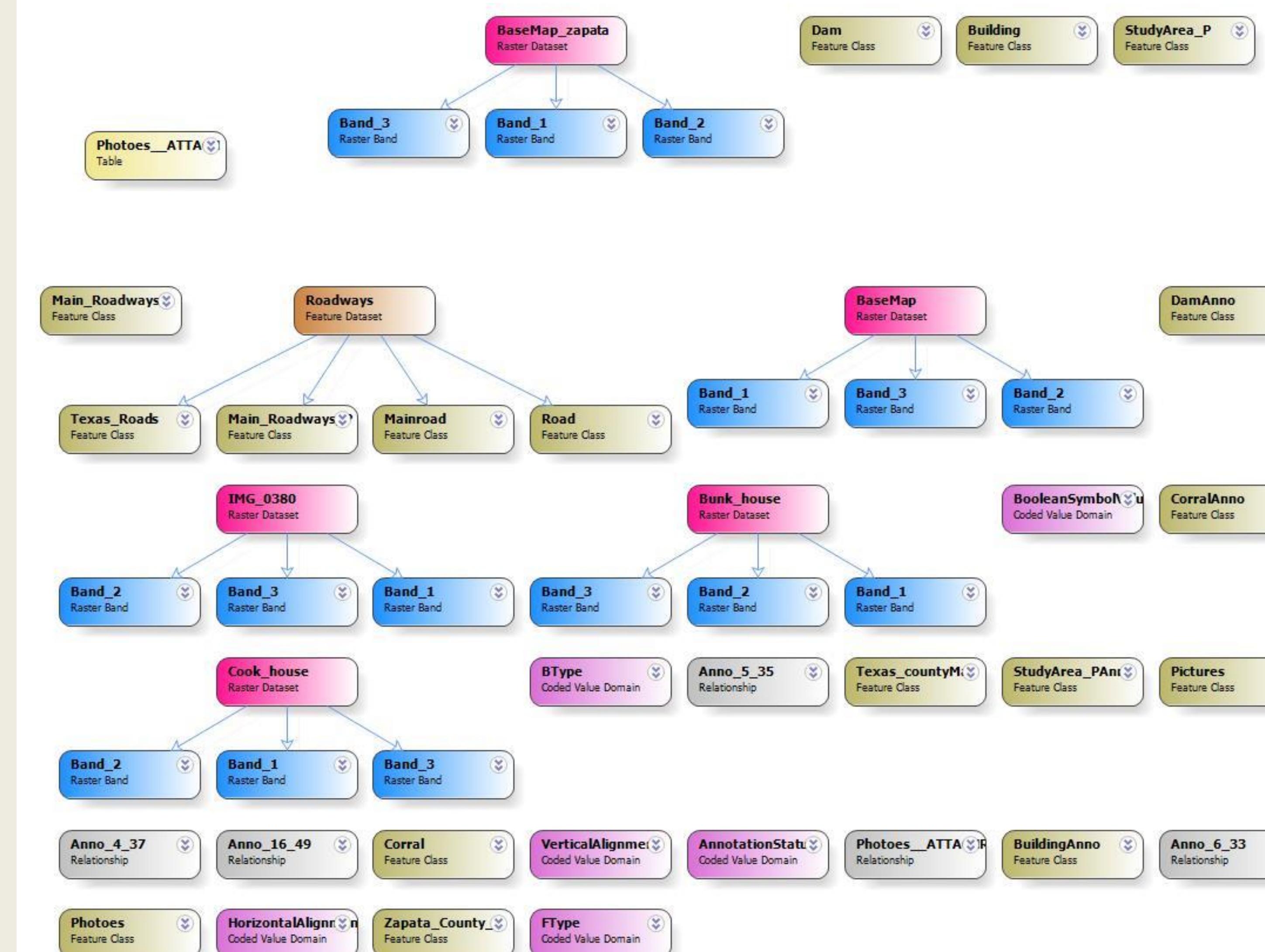


Fig. 3: Flow diagram of project methodology

RESULTS

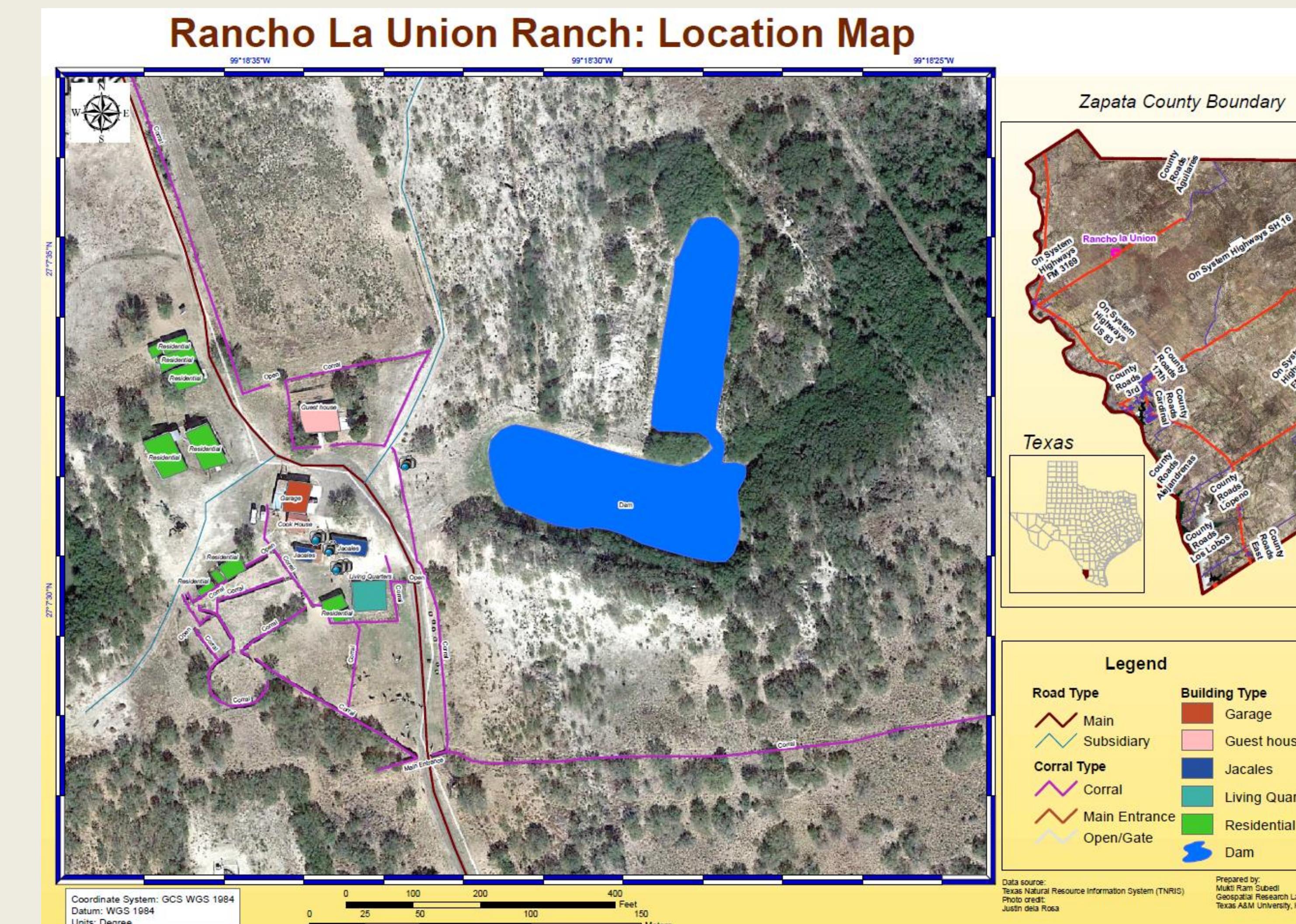


Fig. 4: Final location map of Rancho La Union

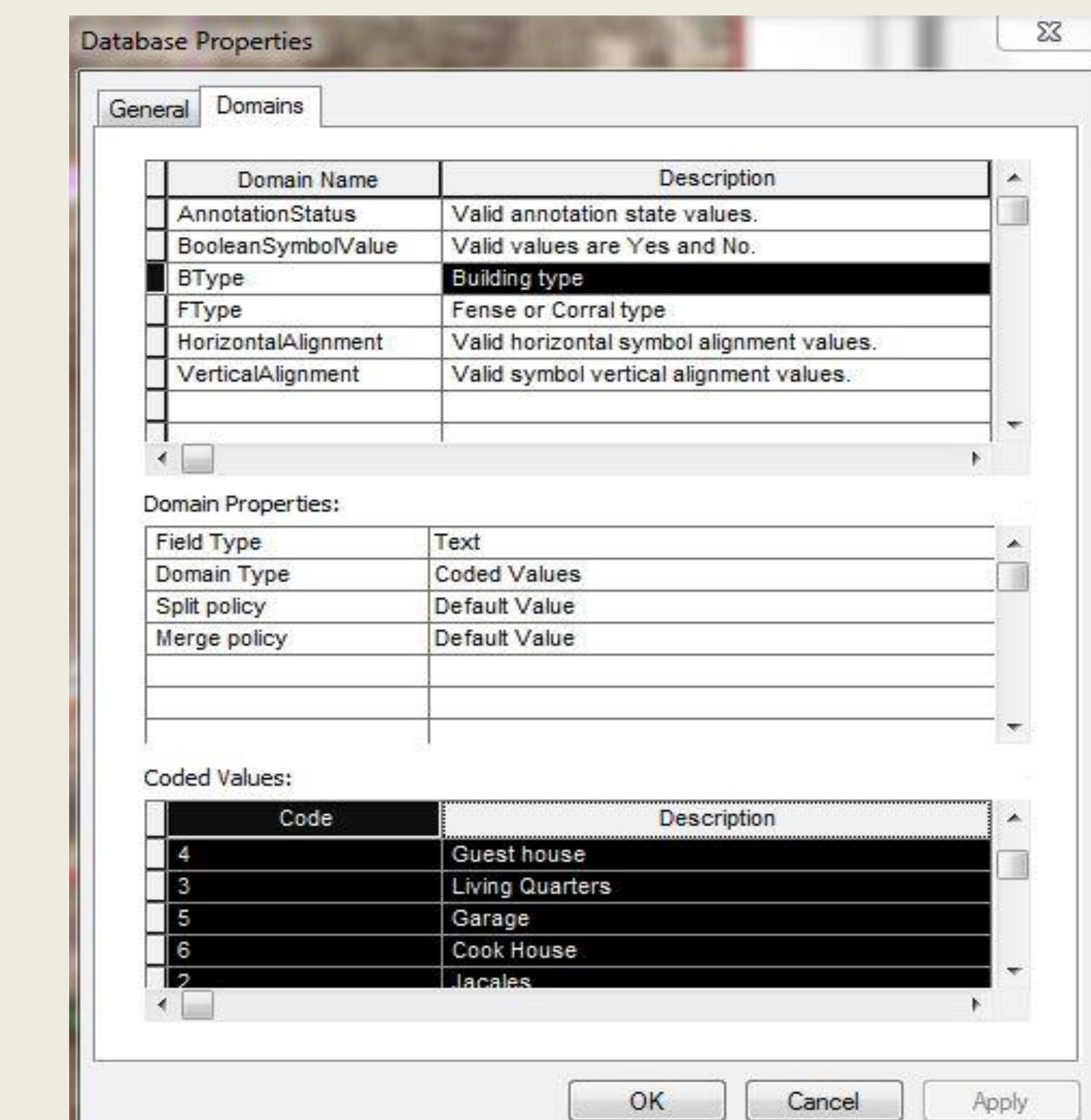


Fig. 5: Geodatabase Domains and Subtypes

DISCUSSION & CONCLUSIONS

- The final map and geodatabase produced by this project creates a spatial baseline for historical documentation and preservation of structures at Rancho La Union.
- The interactive GIS map will be utilized on the principal website for the Ranch for visitors and educational purposes.

ACKNOWLEDGEMENTS

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