The Canoa Ranch Master Plan

Final Report
February 2007

POSTER FROST ASSOCIATES
ARCHITECTURE PLANNING URBAN DESIGN

THE SEAL OF PIMA COUNTY ARIZONA

The Canoa Ranch Master Plan

Final Report
February 2007

The Canoa Ranch Master Plan

Pima County Board of Supervisors

Richard Elías, Chairman, Supervisor, District 5
Ann Day, Supervisor, District 1
Ramón Valadez, Supervisor, District 2
Sharon Bronson, Supervisor, District 3
Raymond J. Carroll, Supervisor, District 4

Pima County Staff

Pima County Administrator
C.H. Huckelberry

Pima County Cultural Resources and Historic Preservation Office
Linda Mayro, Director
Roger Anyon
Simon Herbert

Pima County Natural Resources, Parks and Recreation
Rafael Payan, Director
Robie Pardee, Program Manager
Kerry Baldwin, Natural Resources Division Manager

Pima County Regional Flood Control District
Julia Fonseca, Environmental Program Manager

Canoa Ranch Community Trust / Oversight Committee

Sandra Stone, Chair
Amanda Castillo
Bill Mortimer
Dan Brocious
Deezie Manning-Catron
Jerry Juliani
Lydia Grijalva
Nan Walden
Nancy Williams
Tom Sheridan
Patricia Preciado Martin
Ralph Ellinwood
Ellie Kurtz
Tony Burrell
Dino Alfaro

Project Team

Poster Frost Associates
Architects/Planners/Project Manager

SAGE Landscape and Environmental
Landscape Architecture and Environmental

Castro Engineering
Civil and Hydrology

Desert Archaeology
Prehistoric Archaeology

Statistical Research
Historic Archaeology

Diana Hadley
Historian

Julia Benites Arriola
Historian

Tom Peterson
Historian

Bob Sharp
Ranching Ecology

Ralph Appelbaum Associates
Interpretation

ConsultEcon
Economic/Marketing/Business

The Canoa Ranch Master Plan was prepared with the assistance of a dedicated team of consultants, local agencies, and spirited individuals who broadened our understanding of this complex project. The Project Team wishes to thank them for their insightful contributions and commitment to this important project.

Except where indicated, all drawings and images were produced by Poster Frost Associates.

Table of Contents

Executive Summary 1

1. Introduction 5

2. Natural Resources 11

3. Built Resources 19

A. Entry and Orientation 23
B. Heritage Area 29
C. Equestrian Center 49
D. Special Events Campground 53
E. Remote Interpretive Sites 55
Capital Costs 59

4. Interpretive Approaches
Ralph Appelbaum Associates

5. Market and Operating Potential of the Canoa Ranch Master Plan
ConsultEcon, Inc.

Executive Summary

For more than a year, a team of consultants, led by Poster Frost Associates, has worked with the Pima County Board of Supervisors, Pima County staff, the Canoa Ranch Community Trust and Oversight Committee, and local stakeholders to develop a Master Plan for the Historic Canoa Ranch. Since purchasing the 4,800 acre Canoa Ranch, south of Green Valley, in 2001, Pima County has embarked on a number of projects at the ranch to preserve and protect the valuable natural and cultural resources. The preservation and restoration of historic buildings, as well as efforts to protect important habitat and restore natural systems are well underway. The Master Plan represents an important milestone towards the goal of making the Canoa Ranch a public site where its rich history can be understood and appreciated by visitors.

Over this one year period, the vast cultural, natural, and educational resources of the Canoa Ranch were identified and priorities were established for their future protection, interpretation and enjoyment by means of a comprehensive master plan. With the expertise of the consultant team, the participation of an active Oversight Committee and community, and the trusted vision and leadership of the Pima County Board and its natural and cultural resource professionals, the Canoa Ranch Master Plan seeks to preserve the Canoa Ranch as a treasure for future generations, retaining a sense of place from earlier times.

Throughout the master planning process the consultant team returned to the community for direction. Three rounds of public meetings were scheduled. The first round of public meetings was held in February of 2006 to give the community a basic level of understanding of the Canoa Ranch and to stimulate the communities' participation in envisioning a future for the property. Three alternative concept plans for the Canoa Ranch

property were presented at public meetings held in June of 2006. Approximately thirty-five people attended the Tucson meeting and nearly eighty people were present in Green Valley. Surveys and written comments from forty-three individuals were collected and tabulated. The public's three most important evaluation criteria for a successful Master Plan, consistent with the preferences of the Canoa Ranch Community Trust / Oversight Committee, were: 1. the experience is authentic, 2. the sense of place and silence is preserved, and 3. it teaches about conservation and sustainability, especially water. The alternative concepts were presented to the Pima County Board of Supervisors at their meeting held on August 1, 2006.

A preferred concept, based on a synthesis of the three alternative concepts, was developed and presented to the public during the third round of public meetings held in November 2006. The preferred alternative includes preservation and restoration of the Manning Era ranch headquarters for use as a Heritage Area with exhibits and programs interpreting all layers of site history. Living history and working ranch demonstrations will provide the visitor with a sense of life on the ranch. Special event programming will provide additional interpretive and educational opportunities. A small number of remote interpretive sites are planned to interpret prominent events and historical themes that have occurred in the region.

Visitor parking, a new orientation center and a new conference and dining center are proposed for the area west of the restored historic pond. To help preserve the site's sense of place and silence, these modern intrusions will be kept some distance from the ranch headquarters. A small fee will be collected for entering the site, with additional fees for entering the Heritage Zone and for additional experiences, including horseback riding and camping. The historic pond will be restored and is expected to generate considerable visitation as a stand alone experience for recreational purposes, including bird watching and picnicking. Comprehensive land restoration and resource management programs are key components of the master plan. Preserving and enhancing the natural resource values of the site through land rehabilitation, research, and stewardship programs offers many opportunities for community participation and partnerships. Several projects are either already underway or proposed, including a plan to produce clean effluent, on-site, for use in restoring the pond, flood plain revegetation projects, and aquifer recharge.

The concept addresses the capital costs associated with implementing the master plan by aligning specific improvements with the County's bond election cycle. As proposed, all major site infrastructure, including new buildings for visitors and staff will be paid for through the County's Bond Elections. Public-private partnerships and private investment will also be encouraged. Initially expected to attract a local audience, facilities and educational programs will need time to mature as a broader visitor market is tapped. Staff and volunteer coordination of educational and stewardship programs will need to be orchestrated as visitation increases.

A business and management plan entitled, Market and Operating Potential of the Canoa Ranch Master Plan was prepared by ConsultEcon, Inc., a Cambridge, Massachusetts based consulting firm who specialize in economic and management analysis of heritage attractions. A conceptual interpretive approach to the site is included in a report prepared by Ralph Appelbaum Associates, widely regarded for their experience in developing interpretive content for important historical sites. Both reports are included as separate chapters in this document.

Public Access Area

Access: Public access to the ranch is by one main entry, arrived at by the I-19 frontage road. The main entry is through the historic Manning Era drive, with vistas of the ranch, pond, valley, and mountains beyond. All visitors to the park will be directed to the main visitor parking lot and Orientation Center north of the drive, nestled in native landscape west of the pond. The main lot has (60) all weather parking spots and (3) bus bays; an additional area to the west would be designated for special event spill-over parking.

Fee structure: A Gift Shop within the Orientation Center will double as a ticketing and information counter. Visitors will be asked to pay a nominal fee for park entry (per car perhaps) and additional fees based on destinations and activities. One goal is to allow public access to recreation areas around the pond but to limit the intensity of public use on this sensitive area by imposing a small fee; perhaps locals and bird watchers could be allowed an annual pass. Admission to the heritage area could be controlled using hand stamps, maps, headsets, or similar. While it is not practical to fence the heritage area completely it may be feasible to create strategic partial enclosure to discourage cheating. Docent led tours, trail rides, Cowboy College, camping, and special events would all impose additional fees.

Circulation / parking: The drive will run south from the main parking area connecting all activities within the public access area, including the pond / Orientation Center / Heritage Area, Caretaker's Cottage, ranch skills school, Hack Stables, maintenance facilities, Equestrian Center / Arena, and special event camp grounds. Parking for docent volunteers (20 spots) is provided behind the Caretaker's Cottage, and accessible parking (5 spots) is provided along a turn-around just west of the Story Center. Special event parking is also planned for in an open field in this general area, for as many as (100) cars. Hack stable, trail ride, and ranch skills school parking will be provide south of the Burnt Adobe House (117). A service drive connects the frontage road to the access drive south of the heritage area, providing gated access to maintenance, service, and trash collection facilities. This second drive could be used for overflow exiting during special events, or possibly for limited access to the equestrian area and campground. Special event parking for the arena will be provided in an adjacent open field.

Primary Attractions

Orientation Center: This is the primary arrival point for visitors and will include a lobby, public toilets, and vending machine area. North of the lobby a gift shop will double as a ticketing and information counter. South of the lobby is an orientation museum, organized into galleries related to historic and prehistoric time periods. Beginning with a Native Peoples gallery the museum moves forward in time through Spanish, Mexican, American Territorial, Manning, Corporate, and Conservation galleries. Buildings would be scaled to match the short span vernacular buildings of the historic ranch, and would be compatible the historic architecture but differentiated. Buildings are angled to create a vista of the heritage area to the southeast, and to buffer the visitors experience form the parking and freeway noise. The building would be configured to allow its use for public and special events, and may include a space dedicated for this.

Conference / Event / Dining / Education Center: This building would also be located north of the Orientation Center and would include an event plaza and lawn facing the pond front (buffered from parking and freeway). This would include a commercial kitchen and service area and a Heritage Foods restaurant serving regional cuisine prepared with locally grown food. A grouping of rooms would ring the plaza and be used for a variety of events including conferences, weddings, heritage events, art fairs and similar.

Pond (6.5 acres): Water front recreation is rare in the Tucson region and will be in high demand. The pond, though, will be sensitive riparian habitat and an important component of the historic setting. A balance between the public interest and preservation goals will be struck by limiting parking and assessing a fee for pond access and parking will be held away from the pond itself (150 LF). A multi-use path will ring the pond and connect to the Anza trail north of the flood berm. Modest picnicking areas will be carefully placed along this path.

Heritage Area / Headquarters Complex (10 acres): The setting and the exteriors of buildings within the Headquarters Complex will be restored to their 1951 appearance. This will include seventeen structures (adobe houses and vernacular ranch buildings), corrals, landscape, pond, canal, and (water rights willing) pasture and agricultural fields. Interiors of the historic structures will be restored but used to interpret other eras and for contemporary programming. The emphasis will be on the long traditions of ranching in Southern Arizona and Northern Sonora, with Canoa Ranch as a unique opportunity to bring these stories to the public. Two buildings will be used as "day-in-the-life" house museums from the Manning era (one for Manning's themselves and one for the Mexican ranch hand / cowboys who kept the ranch working), but other buildings will interpret Mexican and Territorial eras as well.

Living Ranch (23 acres): The south section of the HQ will function as a living ranch, with tack room, blacksmiths shop, hay barn, stables, corrals, pasture and offices for the trail ride operation, ranch skills school, and heritage breeds program. The historic mesquite corrals may be lined with pipe rail panels for protection. The burnt adobe house (117) would act as an arrival point and office for hack stables and Ranch Skills School, and the south house (120) could be used as a residence for on-site program manager. Four bunkhouses, screened with landscape, on the southern fringe of the historic area can accommodate a total of 64 visitors in rustic accommodations. The (10) acre pasture west of the historic flood/irrigation berm will be used (irrigation rights permitting) as pasture to help feed and, more importantly, display heritage cattle breeds; this pasture will also act as a foreground landscape feature as seen from the approach along the frontage road. Special events in this area might include living history, holiday hay rides, and festivals. By their nature the weekend cowboys, "dudes", or general public associated with the Living Ranch area should be kept at arms length form the professional cowboys and horse owners using the equestrian facilities to the south.

Equestrian Center: The existing (30) acre equestrian facilities would remain in its current location and could support both a specialty equestrian training center and a special event area and arena. The specialty training is seen as having little public benefit, but is an historic land use, a modern outgrowth of the ranching traditions of the region, and a good fit for the site. Special events might consist of rodeos, "mutton busting", roping events, and "rawhide" pulls.

Special event campground: At the south end of the public access area, situated in the niche between the canal, historic reservoir, and mesquite Bosque is a multi-use camp site. It would be designed to accommodate equestrian trailers and intended as a camp site for Anza trail riders, both as a base camp and as an overnight stop for riders based up or down river. It would also be used as a site for overnight hack stable riders, star gazing events, scout troops or similar, but would not be available on a drop-in basis.

Photo by Howell Manning, Jr.

Introduction

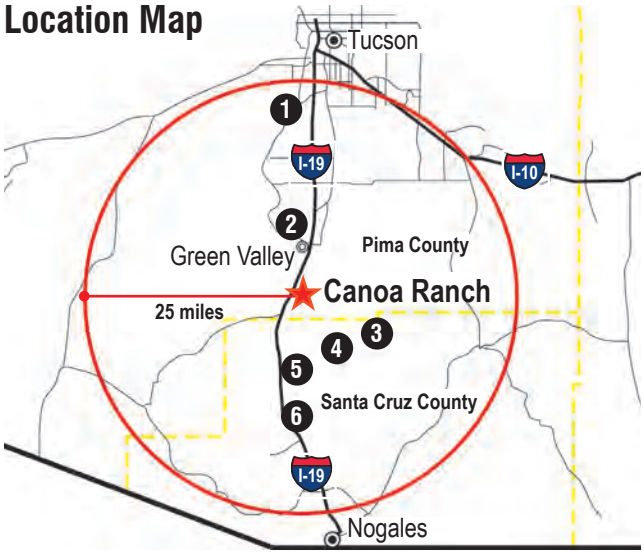
Canoa Ranch is a treasure of natural and cultural resources. The objective of this Master Plan is to integrate the historic site resources with the larger context of the Santa Cruz River Valley to preserve, restore and rehabilitate the site for public benefit. To facilitate this objective, the overall 4,800 acre project site is broken down into distinct zones in both the natural resource and cultural resource arenas.

The Master Plan identifies three land stewardship zones that differ in vegetative composition and ecological health, as well as former and proposed uses. The landscape treatments in each of these zones is tied together with common themes designed to create a comprehensive user experience. The ultimate goal of the Master Plan is to integrate the project stakeholders and the general public into the ongoing use, management and stewardship of the property.

The cultural resources of the site span more than 4,000 years and range from 5th Millennia B.C. archaeology to 20th Century ranch buildings. Resources are distributed throughout the site and will be preserved and interpreted for the public. The plan takes into account the sensitive nature of the site's physical resources and protects both their condition and setting for the future. Important heritage resources will be sheltered from over-visitation and access to other sensitive resources will be restricted. Our goal is to both provide access, when appropriate, and, at the same time, insure that cultural resources are protected for future generations.

By nature, a master plan generates overall concepts and recommendations for a site based on desired goals and outcomes.

Location Map



1. Mission San Xavier del Bac
2. Titan Missile Museum
3. Whipple Observatory
4. Madera Canyon
5. Tubac Presidio State Park
6. Tumacácori National Historical Park

The Canoa Ranch is located in the Santa Cruz River Valley of Southern Arizona. A number of other natural and cultural attractions are located within a short drive of the Canoa Ranch.

Master Plan Criteria

The following criteria, suggested by the Canoa Ranch Community Trust and Oversight Committee, were used to develop the Master Plan and should be used to evaluate the success of the plan as it is implemented

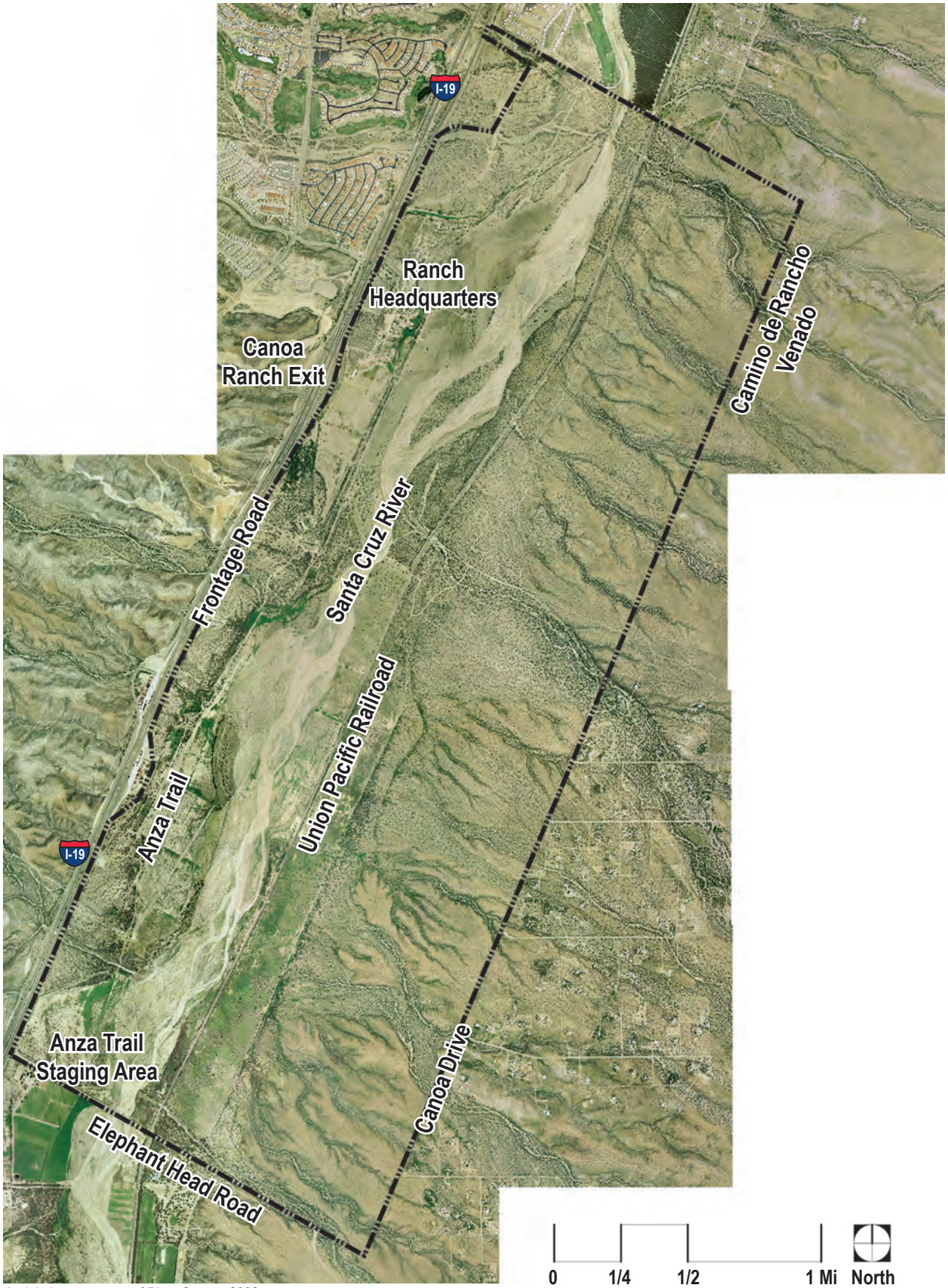
Educational, especially for kids
Represents diverse peoples and cultures
Tells/gathers untold stories
Aimed first at local audience
Encourages repeat visits
Teaches conservation and sustainability, esp. water
The experience is authentic
The sense of place and silence is preserved
Can be staffed and stewarded
Incorporates partners and friends
Represents past, present and future
Economically viable – capital cost
Economically viable – operating cost
Consistent with Sonoran Desert Conservation Plan

In the process of preparing the Master Plan, the consultant team collected extensive amounts of information on Canoa's history, current conditions, and its value to the community. A companion document entitled The Canoa Ranch Master Plan Background Report, provides extensive site and resource information. Economic and marketing analysis of comparable sites was also collected and informed the planning process. Criteria (see this page) for the Master Plan were developed in conjunction with the Canoa Ranch Community Trust and Oversight Committee.

Master Plan concepts were presented to the general public at meetings held in June 2006. From the initial concepts, a final concept was developed and is presented within this document. On the following pages, natural and heritage resource concept plans introduce the principle concepts of the Master Plan. Specific details and recommendations are included in individual sections on natural and cultural resources.

General landscape, mitigation, environmental permitting and regulatory requirements will need to be addressed in the next phase of site design. These include threatened and endangered species surveys and documentation, Corps of Engineers Clean Water Act 404 and Section 402 permitting, cultural resource documentation and mitigation, storm water pollution prevention plans, Pima County native plant preservation ordinance inventory and documentation, Pima County landscape buffer yard ordinance compliance, Pima County Xeriscape ordinance compliance, and depending on the source of funding other Federally regulated required permitting.

Aerial Photo



Aerial photo courtesy of Pima County, 2002

Natural Resource Concept Plan

Three overall land stewardship zones are included in the Master Plan. The three zones are defined by existing or proposed elements, for convenience only. The actual boundaries of these areas will be considered as gradients of change from one area to another.

Zone 1
Historic West Bank

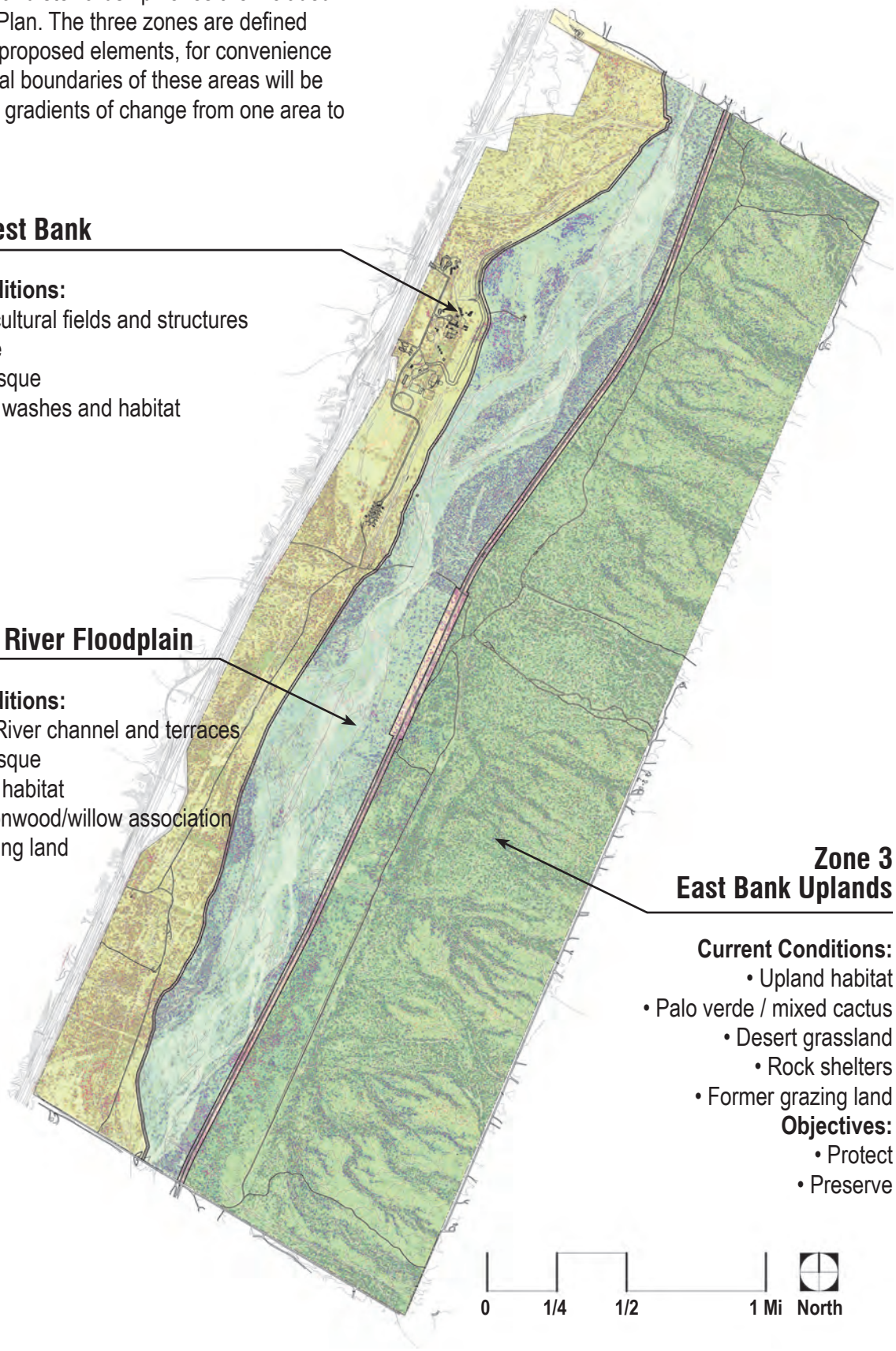
Current Conditions:
- Former agricultural fields and structures
- River terrace
- Mesquite bosque
- Xeroriparian washes and habitat
- Anza Trail

Objectives:
- Interpret
- Reclaim
- Preserve

Zone 2
Santa Cruz River Floodplain

Current Conditions:
- Santa Cruz River channel and terraces
- Mesquite bosque
- Xeroriparian habitat
- Former cottonwood/willow association
- Former grazing land

Objectives:
- Protect
- Enhance



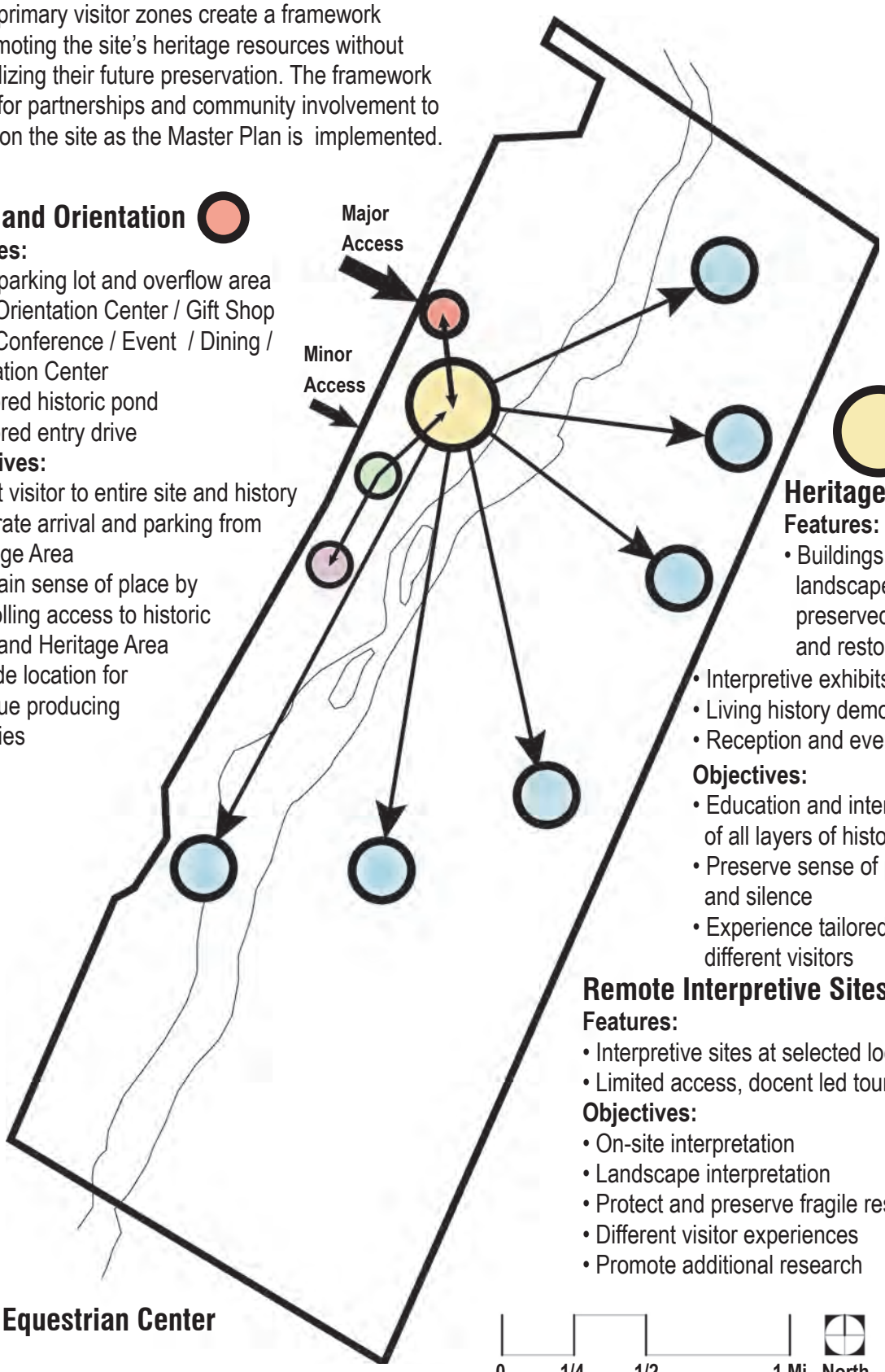
Zone 3
East Bank Uplands

Current Conditions:
- Upland habitat
- Palo verde / mixed cactus
- Desert grassland
- Rock shelters
- Former grazing land

Objectives:
- Protect
- Preserve

Heritage Resource Concept Plan

These primary visitor zones create a framework for promoting the site's heritage resources without jeopardizing their future preservation. The framework allows for partnerships and community involvement to evolve on the site as the Master Plan is implemented.



Entry and Orientation

Features:

- Main parking lot and overflow area
- New Orientation Center / Gift Shop
- New Conference / Event / Dining / Education Center
- Restored historic pond
- Restored entry drive

Objectives:

- Orient visitor to entire site and history
- Separate arrival and parking from Heritage Area
- Maintain sense of place by controlling access to historic pond and Heritage Area
- Provide location for revenue producing activities

Heritage Area

Features:

- Buildings / landscape preserved and restored
- Interpretive exhibits
- Living history demonstrations
- Reception and event spaces

Objectives:

- Education and interpretation of all layers of history
- Preserve sense of place and silence
- Experience tailored for different visitors

Remote Interpretive Sites

Features:

- Interpretive sites at selected locations
- Limited access, docent led tours

Objectives:

- On-site interpretation
- Landscape interpretation
- Protect and preserve fragile resources
- Different visitor experiences
- Promote additional research

Equestrian Center

Special Event Campground

Historical Overview

Canoa Ranch is a microcosm of the history of our land and our people and the telling of the Canoa Ranch story encapsulates many of the narratives of Southern Arizona. When we understand the rich and diverse past and present of the river, the land, the peoples, and the economy of this place, then maybe we can plan a future for Canoa Ranch that respects and honors its vital place in our community. In brevity, the stories of the people of this place are as follows:

Native People (2,000 BC): There was intermittent occupation of the Canoa area throughout the prehistoric period, including Hohokam (600-1450) and O'odham (1600s-1800s). Prehistoric sites cover a large portion of the 4800 acres but are especially concentrated in the access restricted east bank uplands.

Spanish (1690): The Camino Real gradually developed from traditional Native American river bank trails. Father Kino traveled these trails in 1770, followed by Anza (on his way to San Francisco) in 1775. La Canoa, the Spanish "paraje", was a regular stop on the Camino Real and believed to be the spot of the Anza camp site.

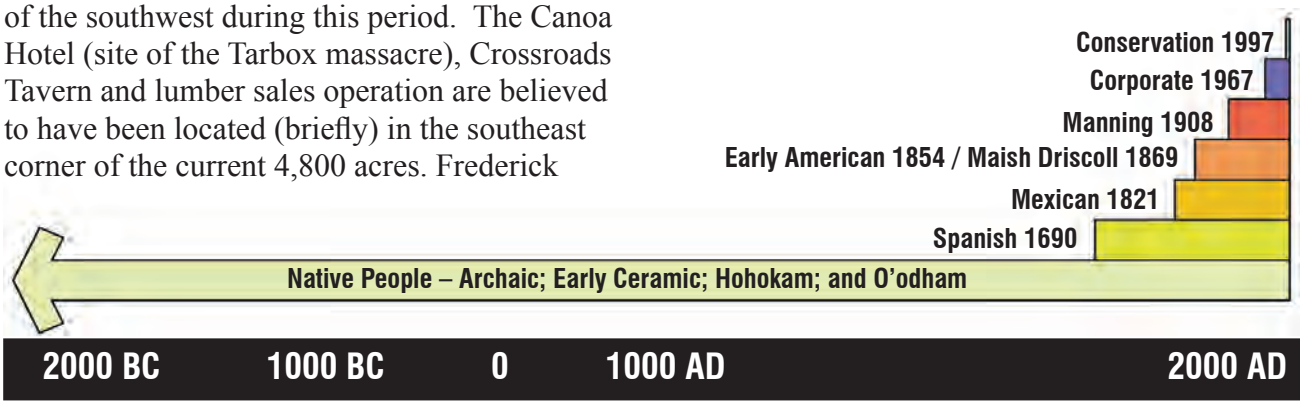
Mexican (Land Grant) (1821): The Canoa Ranch can be seen as an example of the larger land grant system and its impact on Southern Arizona (Santa Cruz, San Pedro, and San Bernardino Valleys) and the establishment of Hispanic American families (Ortiz, Elias, Herreras).

American Territorial / Maish Driscoll (1869): Indian warfare hindered American occupation of the southwest during this period. The Canoa Hotel (site of the Tarbox massacre), Crossroads Tavern and lumber sales operation are believed to have been located (briefly) in the southeast corner of the current 4,800 acres. Frederick Maish and Thomas Driscoll began running cattle on the Canoa Grant in 1775. In 1887 they initiated the Canoa Canal Company and began a long term reshaping of the land for irrigation and agriculture. In 1880 the Southern Pacific railroad crossed Southern Arizona, and in 1910 Canoa Ranch was linked to it by the Tucson-Nogales railroad.

Manning (1908): Most of the abundant historic era resources remaining on the ranch date from this time. These resources retain near complete historic integrity and remain much as they were during the mid 20th century. The west bank of the river is rich with irrigation, water collection, flood control, and ranching and agricultural infrastructure that tell an important part of the story of the land.

Corporate (1967): Importantly the water rights were separated from the land rights by Pennzoil and water rights then sold to Phelps Dodge, limiting how the land could be used and redirecting large amounts of water to the mines.

Conservation (1997): Pima County voters approve $2 million to purchase the Canoa Ranch and another $200,000 to rehabilitate structures in 1997. Sites will undergo ecological restoration or preservation and these should offer a variety of interpretative opportunities. Finally, as the land around the ranch continues to be developed the ranch will stand is contrast as a natural refuge and reminder of the openness of an earlier time.



Natural Resources

Canoa Ranch is identified as “an important natural landmark that is significant for its important riparian areas and its scenic and historic values,” by the Pima County Open Space Committee in 1988, and again in 1997. Both the surrounding context and the project site have been studied and documented at a planning level, which is used as the foundation to analyze the landscape’s history, continuity, change, ecological condition, habitat, recreational resources and visual resources.

Zone 1: Historic West Bank

West property line to the Anza trail, 800 acres

This area has the majority of historic era sites and features still in existence from the ranching era and will therefore have the most public access. From an ecological perspective the extensive land use along with the more recent I-19 corridor altered this strip of land, changing it from a xeroriparian flood terrace broken up by many tributary washes to a commercial agricultural landscape and finally to its current condition as a biologically degraded landscape dominated by former agricultural fields / pastures and a reduced number of channelized drainage ways. The goals in this zone are to develop interpretive features and landscapes for the public related to history and ecology and to enhance existing native habitat and drainages to retain storm water.

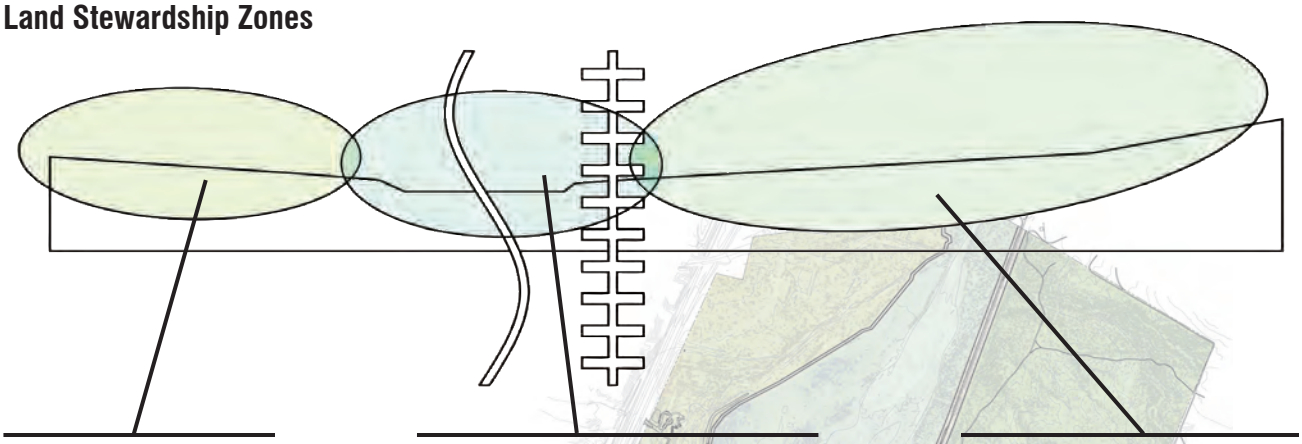
Limited areas of historic cultural landscape will be restored in keeping with the architectural restoration of the Manning ranch headquarters (HQ). Two landscape elements that can serve both historic and habitat restoration goals are the pond and the canal. These provide the opportunity for restoring cottonwood/willow habitat at their margins. In addition, the restoration of working farm fields in the HQ area will return some fields to their former use. The farm will be planned in conjunction with other land stewardship tools (cattle/livestock, rain water harvesting, habitat and water management, volunteers) and balanced with the historic landscape restoration goals. The goal is the integration of the natural ecosystem and dry land farming techniques to restore and operate an efficient, sustainable and productive farm. This integrated system will protect water and soil resources, provide a place of learning for visitors and an abundance of wholesome and historic crops.

This area will have the most public access. Limited and controlled public access will extend south from the historic HQ entry drive to the canal head / seep area. Areas north, south and east of this public access will be restricted to signed trails, docent lead tours, and special events. The only exception is the Anza trail head parking lot and trail system which will remain open to the public at all times. North of the HQ will be the restored Manning ranch pond and a new ten to twelve acre effluent infiltration field. East and south of the HQ, the northern third of the canal will be restored. The lands south of the HQ are rich with historic era irrigation and flood control infrastructure, and agricultural fields. Existing roads and trails will be used to allow guided access to these areas to interpret the history of cultural and ecological changes to the land.

The goal for the former agricultural field and pastures reclamation work is to re-establish some working agricultural fields and restore sustainable native mixed scrub/mesquite habitat. The rehabilitation of the fields on the west side is a priority. The methods will be low-tech and focus on enhancing the natural forces of native plant succession including the removal of exotics and invasive species. In this area there is opportunity to test alternative land restoration techniques including cattle as a restoration tool. Fencing required for this grazing will be designed for minimal disruption to wildlife movement and will maintain a buffer between the cattle and the river habitat to protect native birds from cowbird brood parasitism. As long as impacts to the Anza Trail are minimal restoration of the distributive flows of a few channelized washes would contribute to enhanced native habitat and slow storm water run off. Wildlife corridors to the west will be maintained especially those connecting with conservation easements west of I-19 and in the major drainage ways running west. Additional means of increasing permeability for wildlife to the west is encouraged, starting with the exploration of results from the 2006 ADOT studies and availability of resources dedicated for wildlife overpasses in the RTA.

Pima County Waste Water Management in association with the County's Flood Control

Land Stewardship Zones



Historic West Bank

- Restore limited amount of historic cultural landscapes
- Interpretation of landscape change
- Reclaim disturbed land and agricultural fields
- Mitigate damage to disturbed lands
- Regulate public access
- Cattle as a possible land stewardship tool

Santa Cruz River Floodplain

- Enhance native xeroriparian floodplain and tributary wash habitat
- Proposed Floodplain Native Vegetation Enhancement Area east of Ranch Headquarters by Pima County Regional Flood Control District
- Manage floodplain as part of the larger flood control system
- Remove exotic invasive species
- Reclaim former agricultural fields. Enhance fields with native vegetation
- No livestock grazing
- Limited public access via the Anza Trail and special docent led tours

East Bank Uplands

- Preserve and protect native species diversity
- Maintain the large open tract of undeveloped land and wildlife corridors
- Invasive plant removal
- Erosion control management of uplands
- Public access restricted to docent lead tours along existing trails and roads
- Test alternative land restoration techniques
- No livestock grazing

District will site a new self-contained waster water package plant north of the HQ. This facility would produce Class A water, safe for use in public areas, and available for irrigation and restoration of the pond.

Zone 2: Santa Cruz River Floodplain

Anza Trail to railroad tracks, 1,000 acres

This area of river channel, natural floodplain and xeroriparian habitat is perhaps the most ecologically important section of the remaining ranch land. It is known as a wildlife corridor for species which range short or long distances and is identified as a raptor corridor. In 2006, several burrowing owls were relocated to the floodplain to the north of the HQ. Starting early in the American Historical period the river floodplain and its banks have been subject to extensive biological impacts from large scale land alterations for food production, water control and transportation routes. Two major documented changes to the floodplain's natural drainage pattern from this period are the construction of the canal and the railroad. The river itself was channelized and straightened in the 20th century, but has regained much of its original width and sinuosity through major flood events over the last twenty years. While most of this reach of the Santa Cruz is understood to have flowed only during floods or periods of snow melt run-off from the Sierrita and Santa Rita Mountains, in times past a consistent high ground water level supported a denser riparian habitat which included the cottonwood/willow association community. Between 2000 and 2002, Pima County Flood Control District documented flows in the absence of storm flows from effluent discharge in the lower one and one half miles. Today's lowered ground water is a lasting legacy from the historic and current water use. In 2005, groundwater was determined to be generally 50 feet below the land surface according to Pima County Flood Control District. This condition can not be corrected by any known restoration methods. Recognizing the current status of available water, the goals for this area are to enhance and to protect the density and structural diversity of existing native xeroriparian habitat to provide ecological connectivity and biological corridors for species movement and to slow and retain storm water. The course of action will include enhancing native xeroriparian flood plain and tributary wash habitat, removing exotic invasive species, promoting the natural succession of native plants in former agricultural fields, and managing the floodplain as part of the larger flood control system of Pima County. Pima County Flood Control District has plans to install a thirty five acre Floodplain Native Vegetation Enhancement Area to the east of the HQ. The main objective will be to enhance native vegetation to slow flood waters. In addition, this agency has been monitoring the riparian vegetation change since 2002. Public access will be limited to guided equestrian trails, docent lead tours, and special events on existing trails. Anza trail riders or other horse riders may be allowed to ride the river to points north and south. The former agricultural fields would have removal of invasive species and enhancement of native vegetation as priorities. Livestock grazing will be prohibited due to the ecological sensitivity of this zone and the cost of vegetation enhancement efforts.

Zone 3: East Bank Uplands

Railroad tracks to the east property line, 3,000 ac.

This area has seen the least amount of major mechanical manipulation and provides a foreground to the views of the Santa Rita Mountains from the west bank. Relatively few acres have had significant alteration for human use and for the most part, the natural drainage channels remain intact. Likely to have been native grassland at the beginning of the American Territorial Period, the subsequent 150 years of overgrazing, lack of fire, the railroad and the introduction of exotic grasses has degraded this habitat. Currently the land features a range of native plant communities including some areas

Land Stewardship Overview

Land and Habitat Restoration Projects

1 Proposed Effluent Recharge Project

- 1a Package Plant
- 1b Restored Pond for Wildlife and Recharge Storage
- 1c Infiltration and Riparian Area
- 1d Enhanced Native Vegetation / Floodplain Buffer

2 Burrowing Owl Habitat

3 Restore Distributary Flows

4 River Restoration

1.5 mile stretch of the Santa Cruz River with documented intermittent flows appropriate for cottonwood / willow restoration

Land Restoration Zones

- Remove Invasive Species
  Re-establish Upland Habitat
  Test Alternative Land Restoration Strategies
- Remove Invasive Species
  Re-establish Native Xeroriparian Habitat
  No Cattle
- Reclaim Former Uses
  Re-establish Native Habitat
  Test Alternative Land Restoration Strategies

of mixed native grasses, palo verde/mixed cacti, and agave/columnar cactus. In addition, other valuable resources in this zone are washes, wildlife links, connections to undeveloped state land, natural rock shelters for bats and extensive archeological resources. The key goals are to preserve and to protect native species diversity and to maintain the large open tract of undeveloped land. To do this, invasive plant removal and erosion control management of uplands are crucial. Low tech water distribution and contentment structures will slow run off and allow deposition and absorption by the plant roots protecting vulnerable ridges and slopes against erosion. The use of low tech structures and systems such as trincheras, gabions, or one-rock dams as well as the reuse of ranch area tanks will be explored. For the most part, this area is enclosed and secured by barbed-wire fencing around the site perimeter and along the railroad tracks. Human activity will be most restricted in this area and limited to existing roads and trails. Invasive species removal is the priority for the former agricultural fields on the south. The fields present another opportunity to test alternative land restoration techniques.

Water Management Guidelines

The story of the Canoa Ranch is in many ways the story of water in the desert. Water is the life-blood of this region and it is because of the reliable source of water at La Canoa (the feeding or drinking trough) that this site was so attractive to Native American farmers, Spanish Explorers, and American Ranchers. Over time, and especially during the ranching era, the wise and inventive use of water was a hallmark of the ranch and a cornerstone of its success.

The Master Plan calls for the reintroduction of water to the site on a meaningful scale to authenticate the historic sense of place, invite recreational users, and support critical habitat. Importantly, though, the plan emphasizes conservation, sustainability, and environmental sensitivity in the supply, handling, and use of water. This is in keeping with the spirit of the ranch and will help to support Pima County's overall stewardship of the Sonoran Desert.

Canoa Ranch currently holds Type-I, non-irrigation water rights for domestic purposes only. Canoa's Type I water rights, amounting to approximately 1,200 acre feet per year, can be used for domestic purposes, including landscape, only. There are currently no irrigation rights at Canoa for agricultural production of food, fiber or pasture. According to the Arizona Department of Water Resources (ADWR), the only way to use groundwater for agriculture is with an exempt well, limited to two acres.

An effluent reuse project is proposed for Canoa Ranch. Under the proposal, between 50,000 and 100,000 gallons per day of class A+ treated effluent would be produced at an on-site package plant. The impetus for this project is the desire to reestablish flood plain vegetation and habitat near the Headquarters Complex. The reestablished of flood plain vegetation would be augmented by effluent from the package plants. The historic pond will be restored with riparian vegetation and used to store effluent for use on-site and to recharge the aquifer. The entire allotment of effluent would be used in one capacity or another so that the package plant could run continuously. An infiltration area could be needed to help redirect effluent during certain times of year. Unfortunately, effluent cannot be used for irrigation of row crops. Likewise, ADWR prohibits the use of reclaimed storage credits for irrigation of pasture or row crops.

A preliminary water budget (Table 1) has been developed for the irrigated areas of the Master Plan.

Fire Management Guidelines

Pima County's standard approach to fire is suppression and it is assumed this approach

Table 1: Preliminary Water Budget

SAGE LANDSCAPE ARCHITECTURE & ENVIRONMENTAL

Area	Plant List	Estimated Total Area Acreage Ac	Estimated Total Area SF SF	Estimated designed landscape SF (% of total SF) Design SF	Evapotranspiration rate (Tucson) Et_o	Irrigation Efficiency (IE)	Species Factor (K_s)	Density Factor (K_d)	Microclimate Factor (K_{mc})	Landscape coefficient (K_l)	ETl (project specific ETo) ET_l	Total Water Demand Gallons (July) Gallons (July)	Total Annual Water Demand Gallons Gallons Annual	Total Annual Water Demand Acre Feet Acre feet Annual
Pond edge	Trees: Velvet Ash (*Fraxinus veluntia*), Fremont Cottonwood (*Populus fremontii*) Shrubs: Native mesoriparian species	3	120,000	54,000	9.06	0.9	0.5	1	0.5	0.3	2.265	84,706	**1,016,478**	**3.05**
Entry drive	Trees: Velvet Ash (Fraxinus veluntia), Mesquite (*Prosopis spp.*) Shrubs: native desert species (creosote)	0.69	30,000	15,000	9.06	0.9	0.5	1	1	0.5	4.53	47,059	**564,710**	**1.69**
Visitor orientation & parking	Mesquite (Prosopis spp.) Shrubs: native shrubs (creosote)	6	280,000	42,000	9.06	0.9	0.7	1.3	1.4	1.3	11.542	335,739	**4,028,866**	**12.09**
Heritage area (75% of design area drip irrigated)	Trees: Velvet Ash (Fraxinus veluntia), Mesquite (Prosopis spp.) Farm crops: 2.5 ac Turf: 2 acres Roses (500sf) Kitchen Garden (500sf)	18	765,000	252,450	9.06	0.9	0.9	1.3	1.4	1.6	14.84	2,594,610	**31,135,320**	**93.41**
Canal edge & buffer	Trees: Velvet Ash (*Fraxinus veluntia*), Fremont Cottonwood (*Populus fremontii*) Shrubs: Native riparian species	4	170,000	85,000	9.06	0.9	0.2	1.1	0.5	0.1	0.9966	58,667	**704,005**	**2.11**
Trail ride offices/Bunkhouse/Residence	Mesquite (Prosopis spp.) Shrubs: native desert species (creosote)	7	288,750	115,500	9.06	0.9	0.5	0.5	1	0.3	2.265	181,178	**2,174,133**	**6.52**
Heritage Breed Pasture (Flood irrigation assumed)	Forage grass (Ryegrass, Sudan, Fescue, Orchard Grass)	20											**10,857,370**	**33.32**
Milk Cow Pasture (Flood irrigation assumed)	Forage grass (Ryegrass, Sudan, Fescue, Orchard Grass)	4											**2,171,474**	**6.66**
Proposed Flood Control Buffer Area (Spray irrigation assumed per PCFCD)	Native shrub xeroriparian species (see PC Flood Control District Plans)	35	1,524,600	381,150	9.06	0.63	0.2	0.5	0.5	0.1	0.453	172,191	**2,066,296**	**6.20**
Equestrian Area	Mesquite (Prosopis spp.) Shrubs: native	28	1,200,000	216,000	9.06	0.9	0.2	0.5	1	0.1	0.906	135,530	**1,626,364**	**4.88**
Campground	Trees: Mesquite (Prosopis spp.) Shrubs: native desert species	14	600,000	120,000	9.06	0.9	0.2	1	1	0.2	1.812	150,589	**1,807,071**	**5.42**
Main road (north end of heritage area to drop off)	Trees: Mesquite (Prosopis spp.) Shrubs: native desert species	1	51,000	10,200	9.06	0.9	0.2	0.5	1	0.1	0.906	6,400	**76,801**	**0.23**
													58,228,886	**175.58**
													Project Total Annual Water Demand Gallons	**Project Total Annual Water Demand Acre feet**

NOTES
1) Figures used are for mid-summer baseline case (July). Calculation method adapted from LEED-NC 2.2 water efficiency reference guide. Pasture equations per Bob Sharp and assumes flood irrigation.
2) Drip irrigation in design areas unless otherwise noted.
3) Soil analysis not available or included in calculations.
4) Calculations for Proposed Flood Control Buffer Area for reference only, verify with Pima County Flood Control District calculations.
5) Rainfall for Canoa not included. Annual Rainfall for Canoa = 15.36 inches. (1931-1994)
6) Reductions possible through use of captured rainwater; recycled on-site greywater; treated, reclaimed municipal wastewater and the use of unirrigated seeded areas.
LEED-NC Equation 1 KL=ks * kd * kmc
LEED-NC Equation 2 ETL (in) = ETO-KL
LEED-NC Equation 5 Total Water Demand Gal = Area (SF) x (ETL(in)/IE) x .6233 gall/sf/in

would be the same for Canoa Ranch. Currently there is no fire management plan for any Pima County park that includes prescribed burns.

Wildland fire response at a park is handled through a reciprocity agreement with Arizona State Land Wildland Fire Center. The process begins with park staff calling the local fire station to report a wildland fire. The station contacts the state fire center which then coordinates the response.

There are two groups of valued resources at Canoa that would be threatened by fires: cultural resources, such as the historic structures and other structures of value, and biological resources of high value and high fire sensitivity. The biological resources include non-fire adapted desert plant communities that are important wildlife corridors or resources such as xeroriparian habitat in the river and washes as well as the agave and columnar cactus habitat in the southwest corner of the property.

An initial step in wildland fire control could be cutting fire breaks in areas with invasive plant species as a means to contain or limit the spread of wildland fire damage. It is possible the roads and railroad track, as well as the planned Anza Trail, could function as fire breaks

It is conjectured that prescribed burns may have use as a tool in rehabilitation in conjunction with other restoration/rehabilitation methods. However, this is dependent on the completion of an analysis of existing biological conditions and specific rehabilitation objectives to determine the feasibility of prescribed burns as a rehabilitation tool.

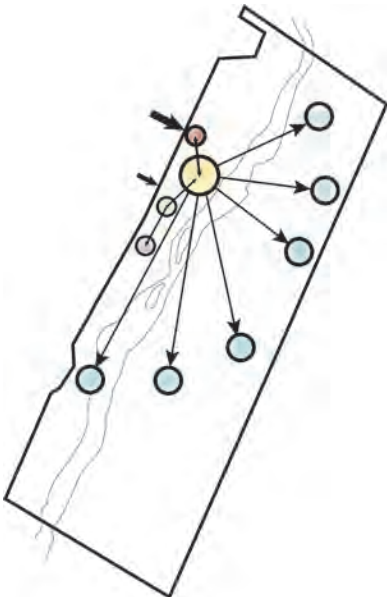
Specific concerns regarding prescribed fire at Canoa Ranch are related to the close proximity of residential neighbors and the fragmentation of the land surrounding the park. These would tend to increase the risk associated with prescribed burns and the perceived nuisance of smoke to the neighbor

Built Resources

Canoa's historic built resources include historical and prehistorical archaeological resources, historic buildings and structures, and historic landscapes. Historic buildings and structures are located at the Canoa Ranch Headquarters Complex, a collection of buildings and structures eligible for listing on the National Register of Historic Places. Many of the buildings display a high degree of integrity and possess many original features. Other buildings have suffered serious damage and loss of historic fabric from decades of neglect. Stabilization, and in some cases, complete restoration of the historic buildings is already underway.

The historic cultural landscape documents the imprints of the cultural groups who have modified the natural environment over time. Features and traces important to understanding historic ranching and agricultural activity at Canoa are present throughout the entire property, but more research is needed to understand their significance.

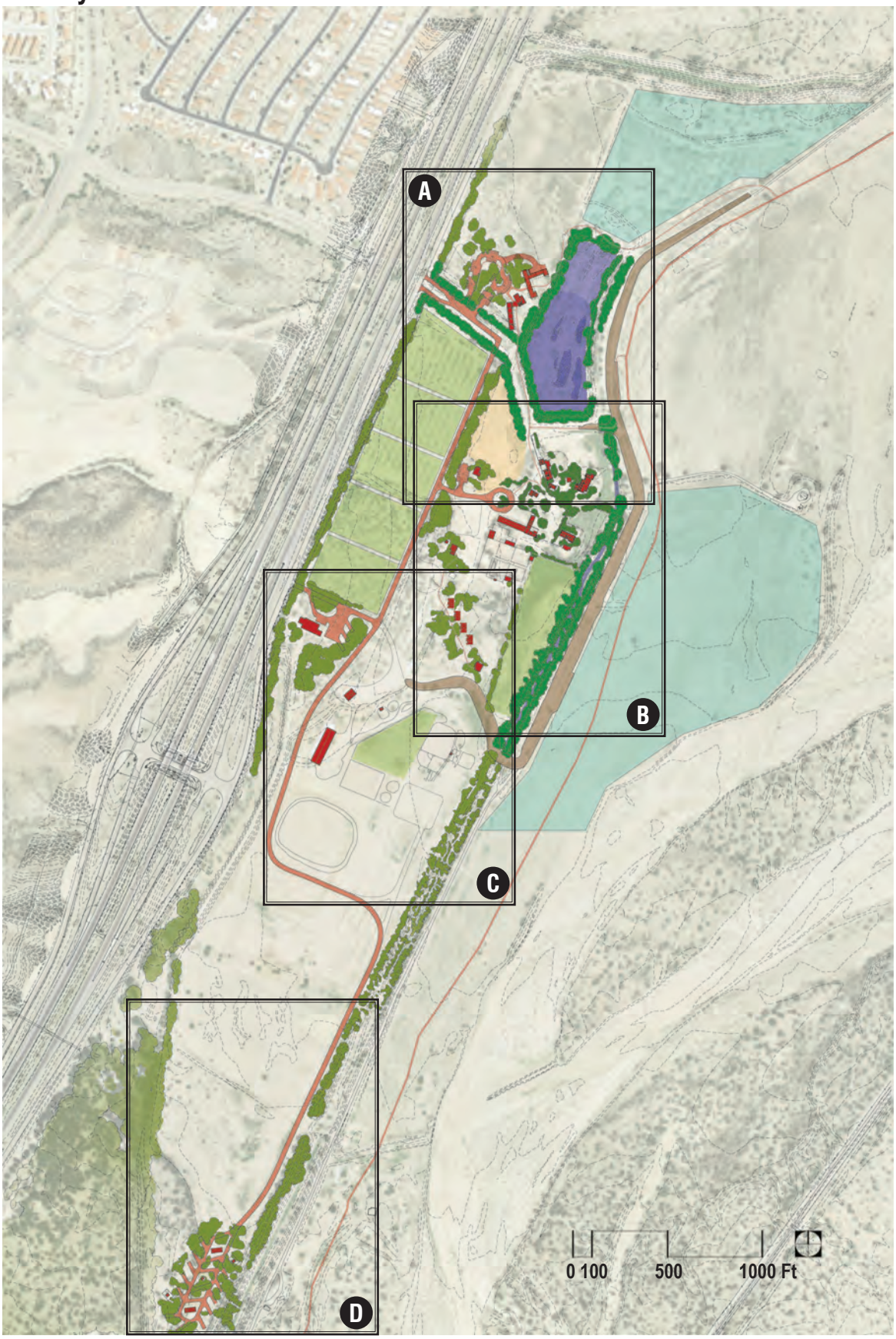
Canoa's preserved and restored historic buildings and landscapes are the foundation on which the visitor experience and interpretive plan is developed. The proposed plan reconciles the park's visitor and interpretive needs with the desired objective of preserving historic resources within a historic setting. The Heritage Area, the most sensitive historic setting, remains separate from parking and orientation activities to help preserve a sense of place.



The Heritage Area buildings and landscape will be restored to their appearance in the early 1950s. Interior spaces will restored and rehabilitated to accommodate a range of interpretive approaches, including exhibits, house museums and living history. When necessary, buildings and structures will be rehabilitated, (adaptively used) in accordance with the Secretary of the Interior's Standards, to accommodate new uses.

The site specific goals of the historic and cultural landscape preservation, restoration and rehabilitation are multi-fold. Some site historic features exist, such as the entry road, corrals and

Primary Visitor Zones



Primary Visitor Zones

Photo by Howell Manning, Jr.

Courtesy of Joe Orman / www.eastvalleyastronomy.org

E Remote Interpretive Sites
(Not shown on this plan)

some buildings. These will be preserved to the extent possible, and the associated historic landscape context preserved and restored, based on photographic and written record, to the period of significance. Rehabilitation will be employed to integrate compatible uses for the landscape such as parking, service access, and accessible access throughout the site. Repairs, alterations and additions to site features will be designed to accommodate these design objectives.

Site lighting and other safety features shall be provided for overall public safety and comfort and to accommodate events. Lighting needs to meet local dark sky codes and be compatible with Mt. Hopkins in the Santa Rita Mountains. The style of new elements such as these shall be coordinated with the historic materials, or obscured from view. Site furnishings will consist of picnic tables by the pond with associated drinking fountains, clustered in discrete groupings. Fencing, gates, ramadas and hardscape treatments shall all be restored from what historically existed on the ranch. Design, repair, maintenance, alterations and addition of new fencing, gates, ramadas and hardscape will convey the sites historical or cultural values through the use of the forms, features and character of this historic setting. The limited and sensitive upgrading of lighting, drinking fountains, accessible ramps and other code-required work to make the property functional is appropriate within this zone.

The Equestrian Center and Campground zones are not considered cultural landscapes. A functional landscape which supports the use and needs of the stables, recreational vehicles, camping, parking, arenas, service areas and bunkhouses will be designed. Native desert plantings will be used for shade, buffering, visual screening, definition of space and enhanced wildlife habitat. A native plant seed mix can be used in peripheral areas where length of time to establishment is not critical.

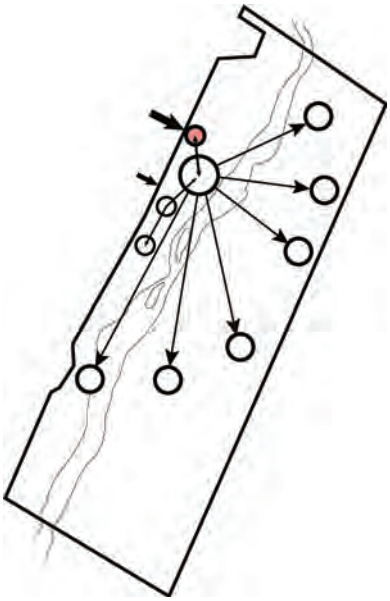
This page is blank

Courtesy of Diana Hadley

Entry and Orientation

The main access point to the site will be from the I-19 Frontage Road, approximately one-half mile north of the Canoa Ranch exit. Visitors will enter the site along the Manning Era entrance drive, restored to its tree-lined appearance, with vistas of the ranch, pond, valley, and mountains beyond.

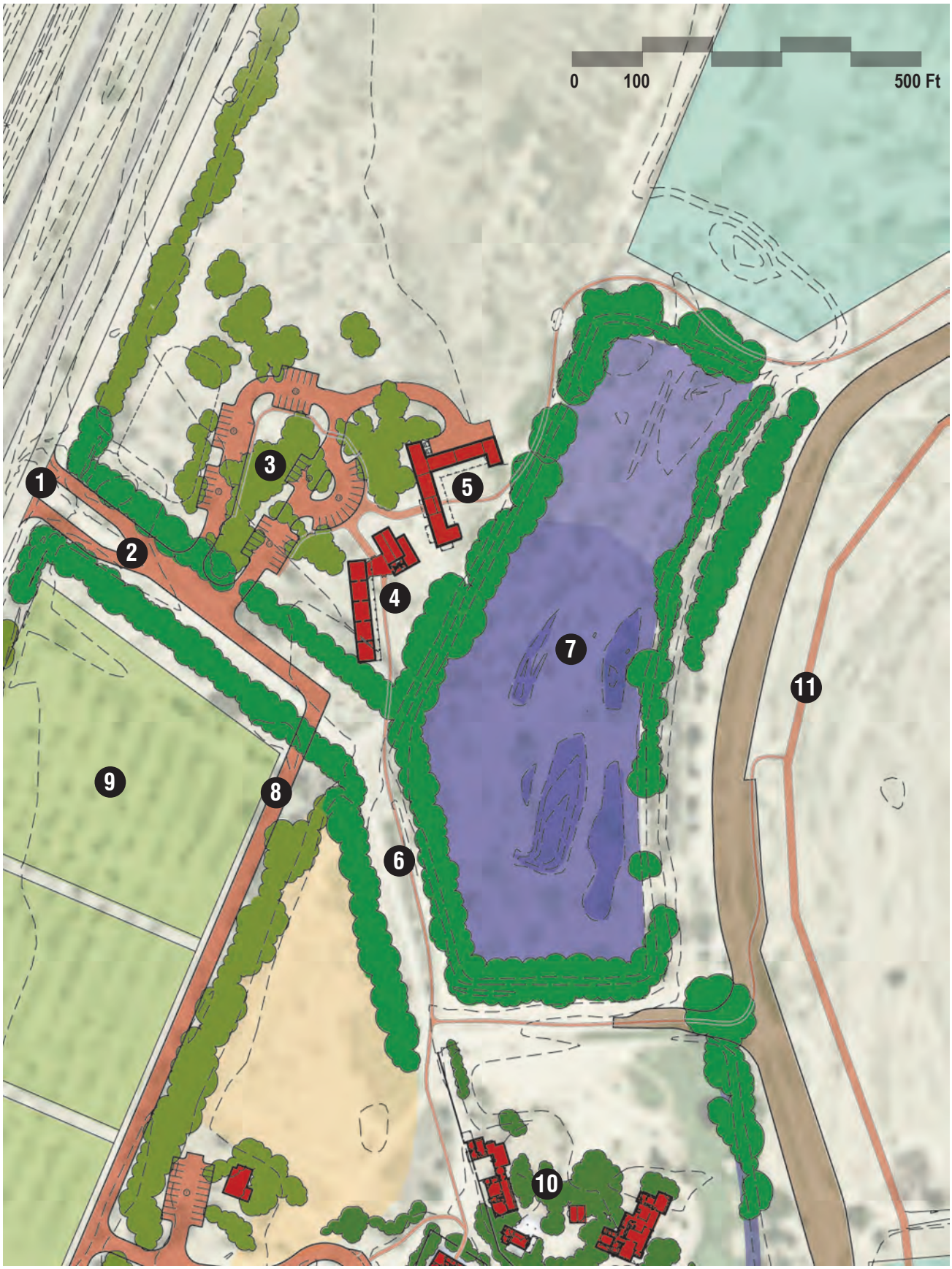
All visitors to the park will be directed to the main visitor parking lot, nestled in native landscape, north of the entrance drive and west of the pond. The main lot has sixty all weather parking spots and three bus bays. Spill-over parking for special events is located to the west of the main parking lot. Visitors will be asked to pay a nominal fee for park entry (per car perhaps) and additional fees based on destinations and activities.



The historic pond will be restored and provide multiple benefits to the site. Recreational uses, including bird watching, will benefit from this additional wetland habitat. The intensity of public use on the pond will be controlled by imposing a small daily fee, with the possibility of making an annual pass available to local residents and special use groups.

Two new buildings are proposed for the area between the parking and historic pond. The buildings will be compatible in scale and style with the vernacular ranch buildings and are angled to create vistas of the Heritage Area to the southeast, and to buffer the visitor experience from parking and freeway noise. Other noise

Overview of Visitor Orientation



Programmatic Elements

1. **Main Park Entrance**
2. **Restored Historic Entry Drive**
3. **Main Parking Lot**
4. **New Orientation Center**
5. **New Conference / Event / Dining and Education Center**
6. **Walking Path to Heritage Area**
7. **Restored Historic Pond**
8. **Main Park Road**
9. **Heritage Breed Pastures**
10. **Heritage Area**
11. **Anza Trail**

Restoration of the historic pond will have multiple benefits to the park. It could become a destination for bird watchers and an amenity used for special events at the ranch.

The visitor will approach the Heritage Area by walking from the Orientation Center along the restored entry drive.

mitigation strategies should be considered to help achieve a more authentic the sense of place.

The Orientation Center will be the primary arrival point for visitors and will include a lobby, public toilets, and vending machine area. A Gift Shop within the Orientation Center will double as a ticketing and information counter. Admission to the Heritage Area could be controlled using hand stamps, maps, headsets, or similar. Docent led tours, trail rides, ranch skills school, camping, and special events would all impose additional fees. South of the lobby is an orientation museum, organized into galleries related to historic and prehistoric time periods. Beginning with a Native Peoples gallery, the museum leads the visitor through galleries dedicated to the Spanish, Mexican, American Territorial, Manning, Corporate, and Conservation Eras. The building would be configured to allow its use for public and special events.

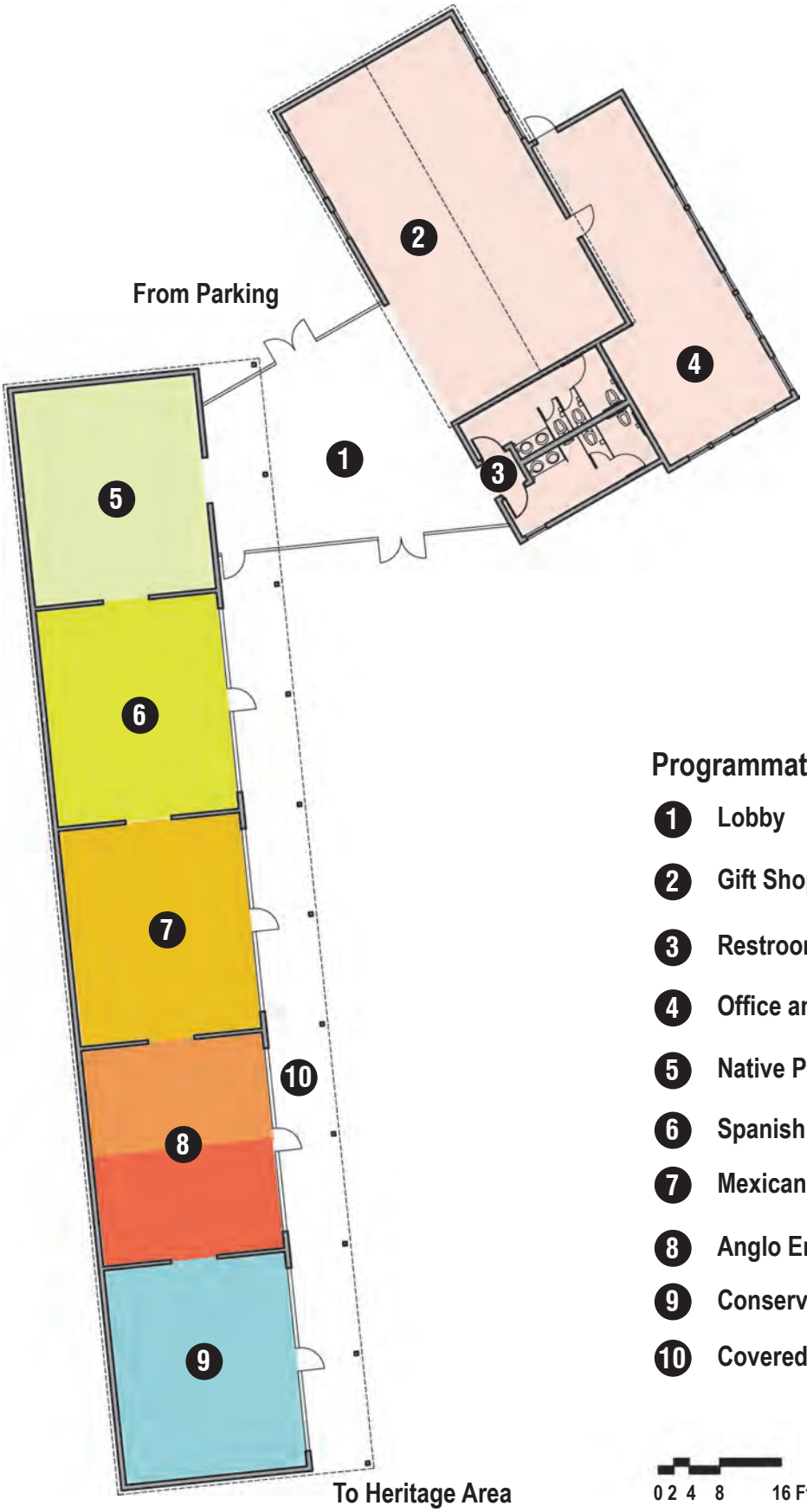
North of the Orientation Center, a second building, for conferences, events, dining and education, is proposed. A heritage foods restaurant, serving meals created from locally grown products, would be appetizing to visitors and local residents. Additional conference and event space would help promote the ranch as a premier venue for weddings, meetings, and special events. Office and classroom space is also included.

The landscape architectural objective in the orientation zone is to restore the entry sequencing so that once a visitor enters the property they begin to experience the history of the site.

This zone will be designed with elements which are similar in character and form to the materials found historically in the ranch property. The tree lined entry drive will be restored as is depicted in historic photos. In addition entry signage, parking configuration, interpretive elements and roadway features will be designed of materials which are modest in scale, and organic in

Entry and Orientation Detail Plan

Orientation Center Plan



Programmatic Elements

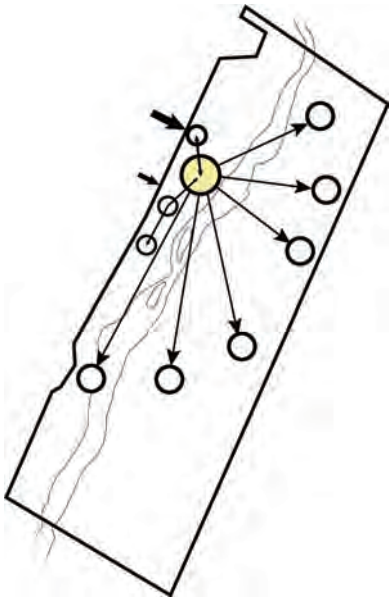
1. Lobby
2. Gift Shop
3. Restrooms
4. Office and Storage
5. Native Peoples' Gallery
6. Spanish Era Gallery
7. Mexican Era Gallery
8. Anglo Era Gallery
9. Conservation Gallery
10. Covered Porch

0 2 4 8 16 Ft

texture, but are not intended to represent historic elements. Ash trees, or a similar species which is historically significant to Canoa, upright and deciduous, will line the entry drive. Native mesquite trees will fortify this entry experience by providing back up screening around the main parking lot. Landform grading such as berms will further assist with buffering the parking. The parking layout will integrate organically with the setting, with many native mesquites which provide shade. The experience evolves into a pedestrian experience at the parking lot along the historic drive. External to the orientation center, the history will begin to be interpreted, so that the historic interpretation is not confined to the orientation center, but seamlessly evolves from the outside inside.

The restored pond will serve multiple objectives, including Pima County Department of Flood Control water treatment, storage and reuse. In addition, the pond will support wetland habitat and foster pond-side recreational activities such as picnics, group gatherings, and passive open space. A bentonite clay lining is recommended for a portion of the pond to minimize water infiltration and soil permeability. Pond-side plant materials will focus on a dense canopy of ash and cottonwood trees. Wetland plant species will be proposed which facilitate the multiple objectives of the pond, and a maintenance plan will be developed to address short term and long term maintenance objectives.

Photo by Adriel Heisey



Heritage Area

The Heritage Area is accessed by walking along the restored entry drive that leaves from the new Orientation Center. This short walk will take the visitor between the restored historic pond and proposed agricultural fields. A limited access turn-out, for drop-off and parking, is available for visitors requiring special accommodations directly west of the Heritage Area. The drop-off can also be used for staging special events at the Ranch Headquarters. Visitors to the Heritage Area will pass through the Story Center where admission tickets will be checked and visitors will be reoriented to activities and programs in the Heritage Area.

The setting and the exteriors of buildings within the Heritage Area will be restored to their appearance in the early 1950s. This

Heritage Area Overall Plan

Programmatic Elements

1. **Main Park Road**
2. **Parking for Volunteers, Docents, and Staff**
3. **Offices for Trail Ride Operations**
4. **New Bunkhouses for Overnight Stay**
5. **Residence / offices for Park Staff**
6. **Canoa Canal Restoration**
7. **Historic Milk Cow Pasture**
8. **Existing Flood Control Berm**
9. **Anza Trail**
10. **Proposed Flood Control Buffer Area**
11. **Pasture for Heritage Cattle / Grass-Fed Beef**

Restored pastures used for Heritage Breed cattle could provide a backdrop to the Heritage Area and an attractive foreground element along the Frontage Road.

If water is available, a portion of the historic Canoa Canal should be restored. The canal would provide habitat and contribute to the historic setting of the Heritage Area.

restoration period was chosen because the Canoa Ranch Headquarters Complex was substantially complete by this time with there being very few changes to the buildings since. The restoration will include seventeen structures (adobe houses and vernacular ranch buildings), retaque corrals, historic landscape, pond, and (water rights willing) canal, pasture and agricultural fields. Minor rehabilitation may be required to accommodate visitors and to meet current code and mechanical requirements.

Interiors of the historic structures will be restored but used to interpret other historical periods and for contemporary programming. The emphasis will be on the long traditions of ranching in Southern Arizona and Northern Sonora, with Canoa Ranch as a unique opportunity to bring these stories to the public. Two buildings will be used as "day-in-the-life" house museums from the Manning Era, one for Manning's and one for the Mexican ranch hand / cowboys who kept the ranch working. Other buildings will be used to interpret Mexican and Territorial ranching history and practices. A Story Center will collect and preserve the oral histories of people with ties to the ranch and its history. Visitors will have a chance to hear these stories and to lend their own comments and thoughts on Canoa.

The south section of the Heritage Area will function as a living ranch, with tack room, blacksmiths shop, hay barn, stables, corrals, pasture and offices for the trail ride operation, ranch skills school, and heritage breeds program. The ten acre pasture west of the historic flood/ irrigation canal will be used (irrigation rights permitting) as pasture to help feed and, more importantly, display heritage cattle breed. Special events in this area might include living history, holiday hay rides, and festivals. By their nature the weekend cowboys, "dudes", or general public associated with the Living Ranch area should be kept at arms length form the professional cowboys and horse owners using the equestrian facilities to the south.

Heritage Area Detail Plan

Programmatic Elements

1. Restored Historic Entry Drive
2. Drop-off and Accessible Parking
3. Story Center / Entry to Heritage Area
4. Ranching Museum (Spanish / Mexican Era)
5. Ranching Museum (Southern Arizona / Northern Sonora Since 1854)
6. Ranch Owners House Museum
7. Living History and Working Ranch Center
8. Ranch Hand House Museum
9. Utility Building / Covered Activity Area
10. Corrals, Stables, and Associated Structures
11. Volunteer Building
12. Restrooms
13. Outdoor Event Areas
14. Caretaker's Cottage
15. Agricultural Fields
16. Restored Canoa Canal
17. Historic Milk Cow Pasture

Courtesy of Deezie Manning-Catron

The plan proposes approximately 2.5 acres for agricultural demonstrations and food production by volunteers and local non-profits. Water rights for food production still need to be obtained.

The landscape treatments in the heritage area and historic plan area are intended to visually and functionally support the preserved, rehabilitated and restored historic structures by providing the visual context similar to what existed at the time of the structures. This zone will contain the most intensive historic interpretation. The plant materials chosen will be based on those identified in historic photos and verbal/written descriptions. These include trees such as mesquite, ash, cottonwood, hackberry Mexican alder and smaller scaled plantings around the historic ranch houses such as roses, lawn and a kitchen garden. The historic Canoa landscape is simple in form, focused on trees, lawn and ornamental plants close to the buildings. Interpretive elements will be located in the landscape, such as historic photos of a view shed, for the purposes of comparing, and in some cases contrasting, with the current view to interpret ecological change over time and also the significance of the cultural landscape.

The pond and heritage area will be visually buffered from the nearby parking and main park road by native vegetation such as mesquite trees, hackberry, brittle bush, wolfberry and also by land form.

A grass crop will be planted to both reconstruct the pastures and the cattle ranch landscape context and to function as a food source for the Heritage Cattle. Suggested forage include: Ryegrass, Sudan, Fescue and Orchard Grass. These same grasses are suggested for the milk cow pasture.

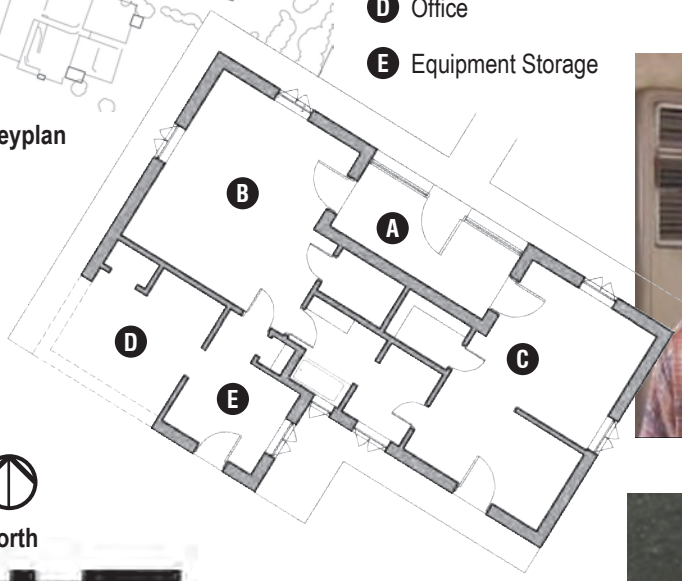
The southern portion of the proposed pasture area is currently designated as xeroriparian type "B" (vegetation volume between .675 and .850 m3/m2) and is considered regulated habitat under Article X of the Pima County Flood Plain and Erosion Hazard Management Ordinance, Watercourse and Riparian Habitat Protection and Mitigation Requirements. Prior to implementation and once the boundaries

of the regulated habitat are confirmed, an On-Site Mitigation Plan would be developed and submitted to Pima County if over one acre or ten percent (10%) of the regulated habitat is disturbed.

❸ Story Center

Building Legend

- **A** Porch
- **B** Interactive Video and Audio Stories
- **C** Sound and Video Recording
- **D** Office
- **E** Equipment Storage



Courtesy of Tomas Javier Castillo

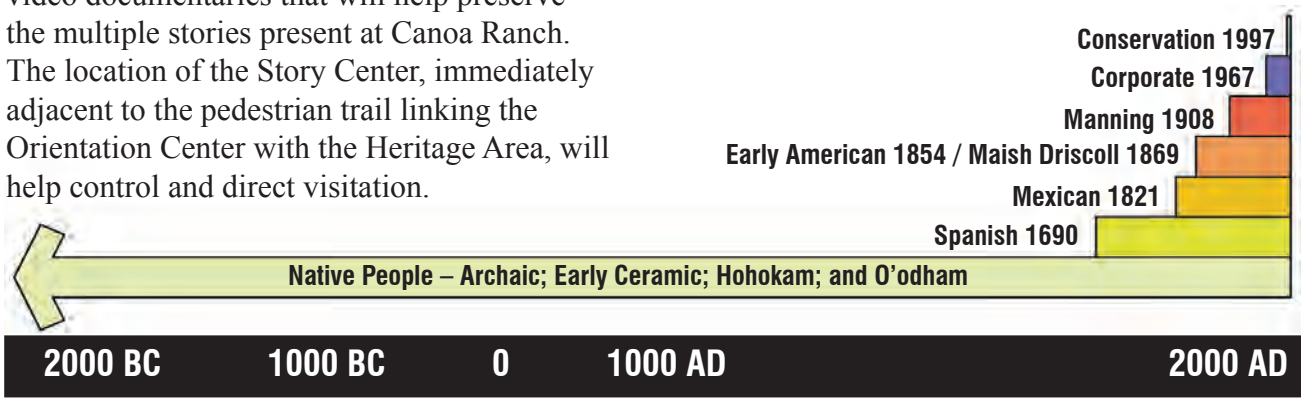
Courtesy of Deezie Manning-Catron

Courtesy of www.america-dreamz.com

Photo by Howell Manning, Jr.

Proposed Use and Building Description

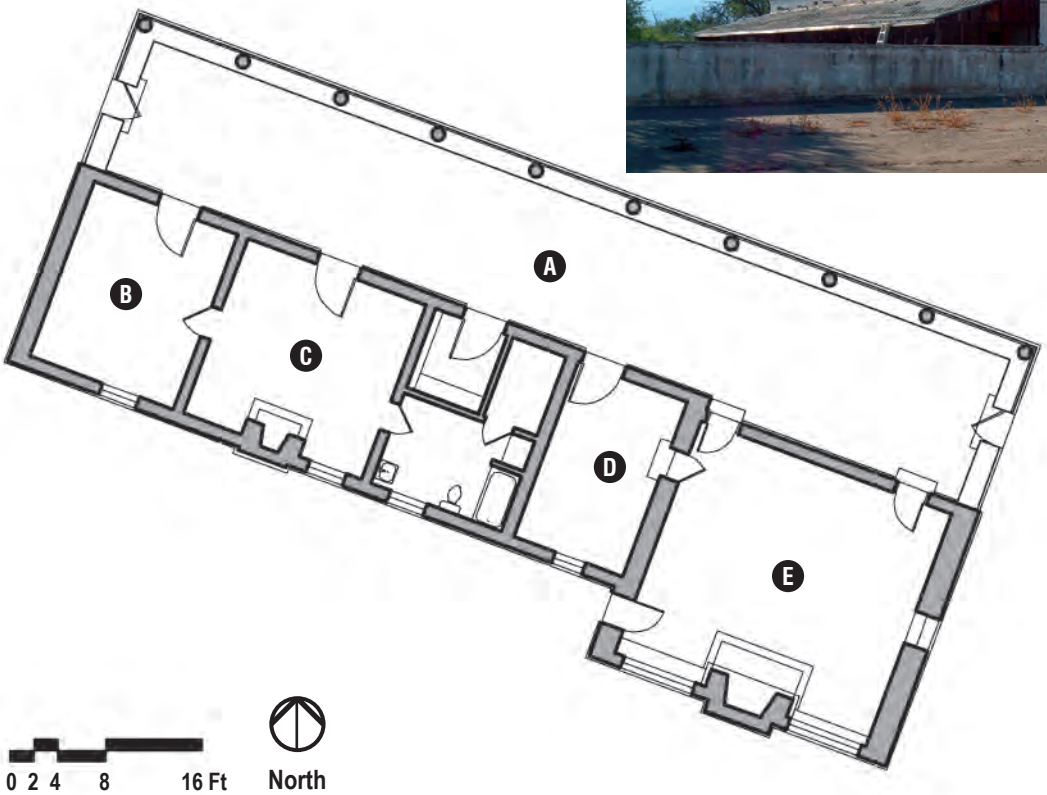
Visitors will enter the Heritage Area through the Story Center, an interactive space dedicated to documenting and sharing the stories of Canoa. Similar to National Public Radio's oral history project, StoryCorp, the Center will record the history of Canoa through audio and video documentaries that will help preserve the multiple stories present at Canoa Ranch. The location of the Story Center, immediately adjacent to the pedestrian trail linking the Orientation Center with the Heritage Area, will help control and direct visitation.



4 Ranching Museum
Spanish and Mexican Era

Keyplan

Courtesy of Deezie Manning-Catron



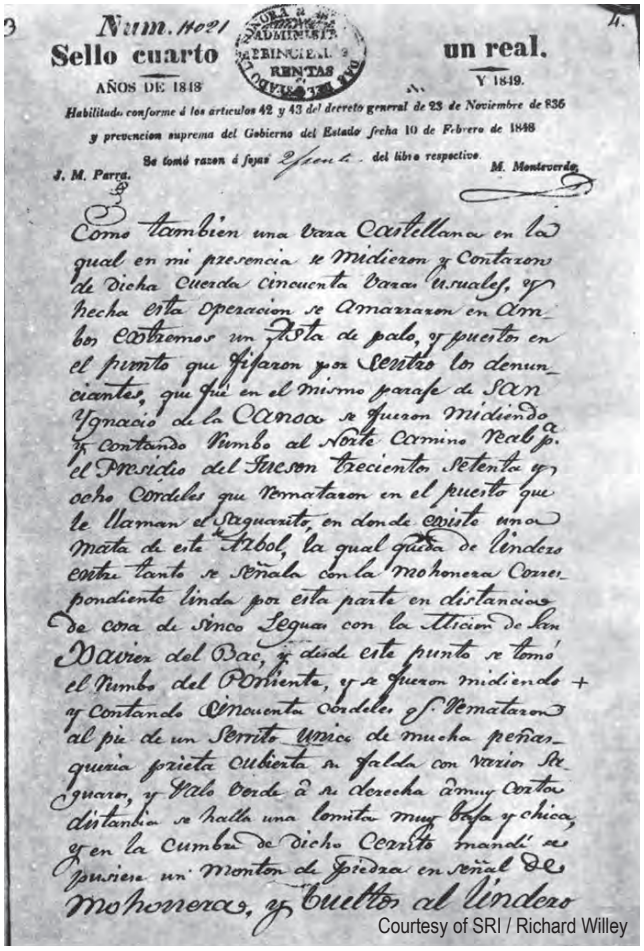
Building Legend

- A Open Porch
- B Spanish and Mexican Building Traditions
- C Vaquero Artifacts
- D Horse Equipment
- E Ortiz Family and Land Grant History

Proposed Use and Building Description

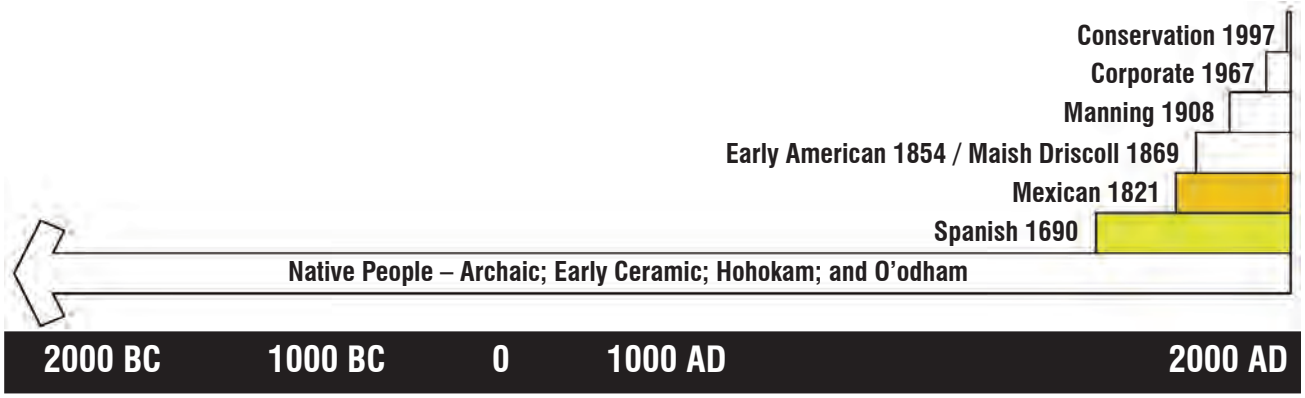
This building will showcase activity and history pertaining to this region's Spanish and Mexican Era ranching. Exhibits will trace the evolution of ranching, from the early introduction of cattle by the Spanish in the 17th and 18th Centuries, through the establishment of Spanish and Mexican Land Grants in the early to mid 19th Century. The petitioning of the Mexican government by the Ortiz brothers in 1821 to establish the San Ignacio de la Canoa Land Grant, followed by their subsequent struggles to establish clear title to the land while facing increased Apache hostility, is critical to understanding the history of ranching at Canoa. The interpretation of ranching practices can be enhanced by the collection and display of vaquero artifacts and horse equipment.

Furthermore, this well-preserved example of a traditional Sonoran building will be used for interpreting Spanish and Mexican building practices. This building displays early responses to building in this climate, including a linear arrangement of spaces, one room deep, a continuous shaded porch for circulation and gathering, thick adobe walls, high ceilings, and a flat roof with canales.


Num. 11021
Sello cuarto
AÑOS DE 1848
un real.
Y 1849.
Habilitado conforme á los artículos 42 y 43 del decreto general de 23 de Noviembre de 836
y prevencion suprema del Gobierno del Estado fecha 10 de Febrero de 1848
Se tomó razon á fojas 2 frente del libro respectivo.
J. M. Parra.
M. Monteverde.

Como tambien una vara castellana en la
qual en mi presencia se midieron y contaron
de dicha cuerda cincuenta varas usuales, y
hecha esta operacion se amarraron en am-
bos extremos un palo de palo, y puesto en
el punto que fijaron por centro los denun-
ciantes, que fue en el mismo paraje de San
Ygnacio de la Canoa se fueron midiendo
y contando rumbo al Norte camino real a
el Presidio del Fuerte trecientos setenta y
ocho cordeles que remataron en el puesto que
le llaman el Saguarito, en donde existe una
mata de este Arbol, la qual guia de lindero
entre tanto se señala con la mohonera corres-
pondiente linda por esta parte en distancia
de cosa de Sinco Leguas con la Mision de San
Xavier del Bac, y desde este punto se tomó
el rumbo del Poniente, y se fueron midiendo +
y contando cincuenta cordeles y remataron
al pie de un Cerrito unico de mucha peña-
quria prieta cubierta su falda con varios Se-
guaros, y Palo Verde á su derecha á muy corta
distancia se halla una lomita muy baja y chica,
y en la cumbre de dicho Cerrito mandé se
pusiese un monton de piedra en señal de
mohonera, y cuelto al lindero

Courtesy of SRI / Richard Willey



5 Ranching Museum
Southern Arizona / Northern Sonora Since 1854

Keyplan

0 2 4 8 16 Ft

North

Building Legend

- A Native American Interactions
- B Early Ranch Style Architecture
- C Railroad Impact on Ranching
- D Evolution of Cattle Breeds
- E Ranch Hand Artifacts
- F Irrigation Systems and Agriculture

Courtesy of Deezie Manning-Catron

Proposed Use and Building Description

This building will be used to interpret the ranching traditions of Northern Sonora and Southern Arizona since the Gadsden Purchase of 1854. Exhibits will focus on new patterns of settlement and economic activity that emerged in the Frontier West as homesteaders and land speculators moved into the region. The intersection of different cultures, including interaction with Native Americans inhabitants, will be interpreted.

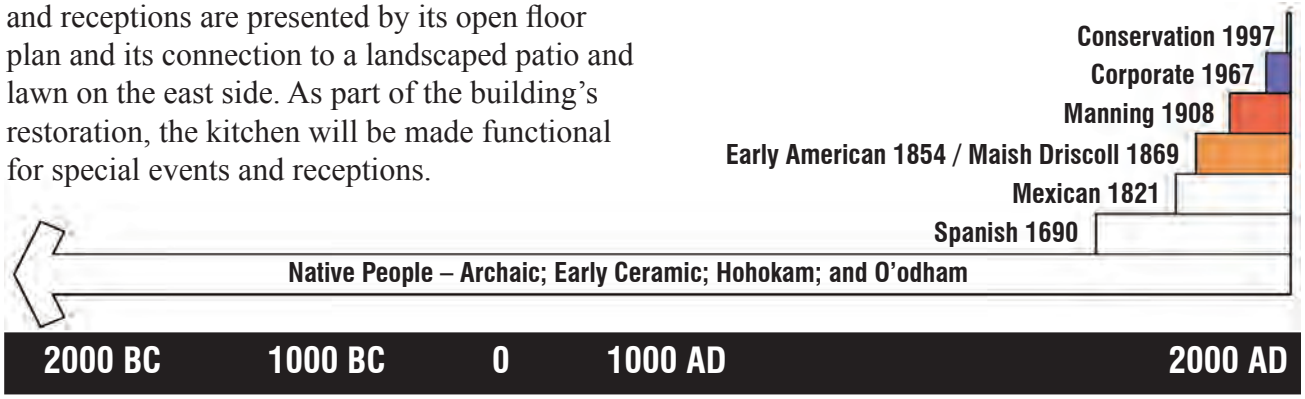
Photo by Howell Manning, Jr.

The impact of national transportation networks (stage coach and subsequent railroad lines) on economic activities, including ranching, will be presented. Likewise, changes in irrigation and agricultural practices, including the development of the Canoa Canal and other irrigation infrastructure will be featured. The evolution of ranching from subsistence farming on several acres to a gentleman's profession on several hundred thousand acres will be presented. The collection and display of ranch artifacts and equipment will be used to further the story of ranching since 1854.

Photo by Howell Manning, Jr.

The Big House, as it is commonly known, was built for Howell Manning, Sr. and his second wife in 1935. As an early ranch-style building, this architect-designed structure can be used to interpret the evolution of the ranch house. Other than minor interior modifications and the possible addition of two small rooms near the kitchen, the residence has remained essentially unaltered since 1935. Opportunities to use this building for special events, including exhibits and receptions are presented by its open floor plan and its connection to a landscaped patio and lawn on the east side. As part of the building's restoration, the kitchen will be made functional for special events and receptions.

Courtesy of Statistical Research



6 Ranch Owners House Museum
Howell Manning, Jr. Family House

Building Legend

- A Courtyard
- B Entry
- C Kitchen
- D Dining and Living
- E Covered Porch
- F Bedroom

0 2 4 8 16 Ft

North

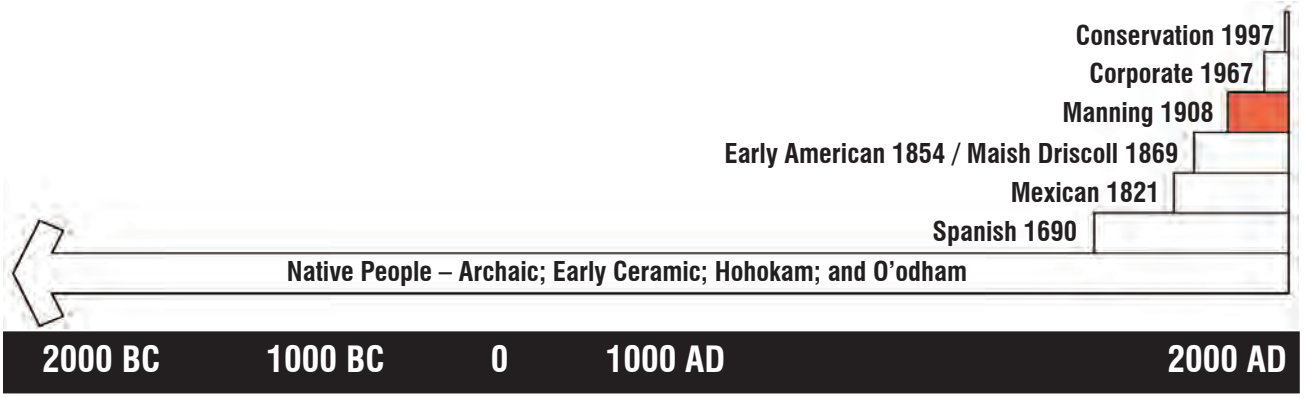
Proposed Use and Building Description

The Long House, as it is commonly known, will be restored to its early 1950s appearance as a house museum interpreting the life of the ranch's owner, the Manning Family. Manning Family furnishings may be collected and returned to the building for display and interpretation. Courtyards around the buildings will be restored and will provide opportunities for interpretation of historic plants and kitchen gardens.

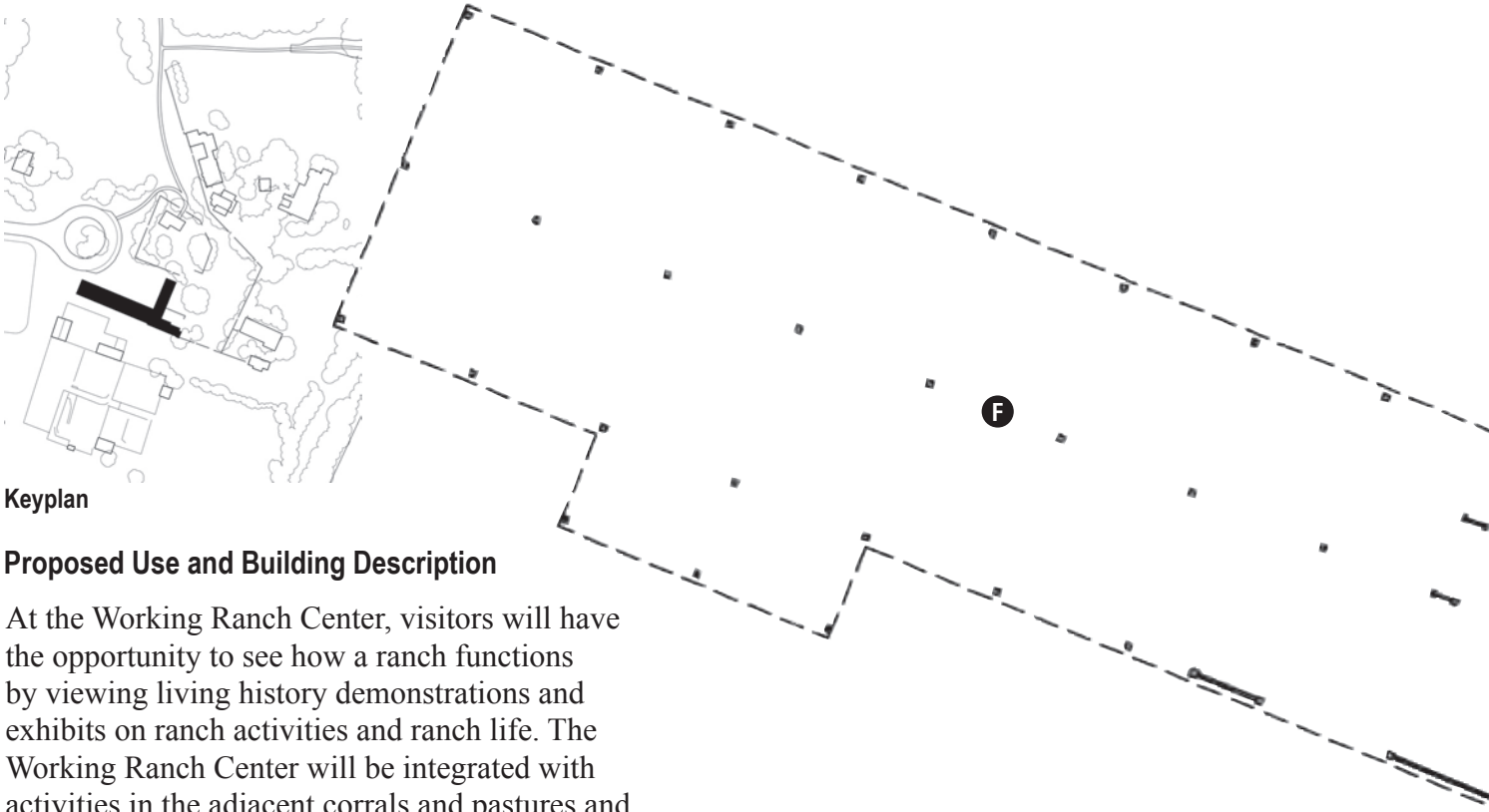
The Long House originally contained sleeping rooms and an open porch for Howell Manning Sr.'s two sons. In 1948, a second wing was added to create a completely functional residence for Howell Manning, Jr. and his new wife, Deezie Manning-Catron. The second wing included a breezeway connection, a living room/dining room, a kitchen and a utility room. The former porch was enclosed to create an inviting sunroom and circulation space. Architecturally unique features include the living room fireplace constructed of stacked flagstone slabs, and the kitchen cabinets and countertops constructed of Mexican cedar. The building retains a high degree of integrity with most historic features and spaces intact. Missing features and furnishings will be reconstructed based on documentary evidence.

Courtesy of Deezie Manning-Catron

Photos by Howell Manning, Jr.



7 Working Ranch Center

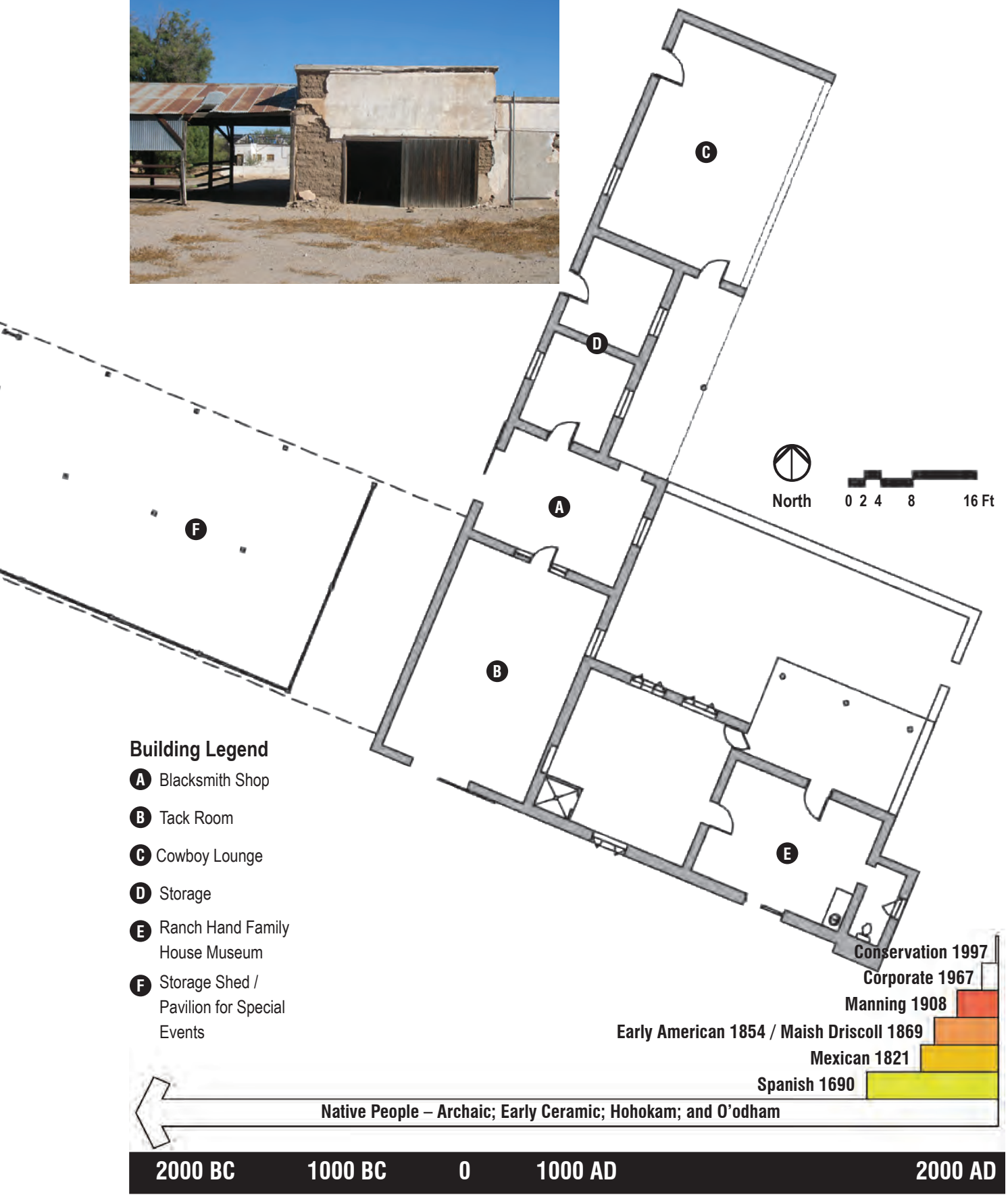


Keyplan

Proposed Use and Building Description

At the Working Ranch Center, visitors will have the opportunity to see how a ranch functions by viewing living history demonstrations and exhibits on ranch activities and ranch life. The Working Ranch Center will be integrated with activities in the adjacent corrals and pastures and will support a variety of the ranch's interpretive and programmatic elements including potential heritage breed cattle operation and agricultural fields.

At the heart of the working section of the ranch is the utility building. The historic blacksmith's shop and tack room will be restored and used for demonstrations and visitor activities. A lounge for the cowboys taking part in living history demonstrations is included in the northern portion of this structure. Probably one of the earliest buildings on the ranch, the utility building is interconnected with two other structures. To the east, is an 890 square foot employee's residence comprised of a bedroom, living room/kitchen, and toilet. This space will be used as a ranch family house museum, interpreting the life of a 20th century family working on the ranch. To the west, an equipment storage shed, added at a later, unknown date, can be used to store equipment or machinery. This largely open, post and beam structure could serve as a covered pavilion for special events at the ranch.


C
D
A
F
B
E
North
0 2 4 8 16 Ft
Building Legend
A Blacksmith Shop
B Tack Room
C Cowboy Lounge
D Storage
E Ranch Hand Family House Museum
F Storage Shed / Pavilion for Special Events
Conservation 1997
Corporate 1967
Manning 1908
Early American 1854 / Maish Driscoll 1869
Mexican 1821
Spanish 1690
Native People – Archaic; Early Ceramic; Hohokam; and O'odham
2000 BC
1000 BC
0
1000 AD
2000 AD

⑩ Corrals, Stables, and Associated Structures

Keyplan

The word *retaque* comes from the Spanish verb, retakar, meaning to "stack up." In this case, horizontal lengths of mesquite wood are carefully fitted and laid on top of one another to a height that cattle cannot jump.

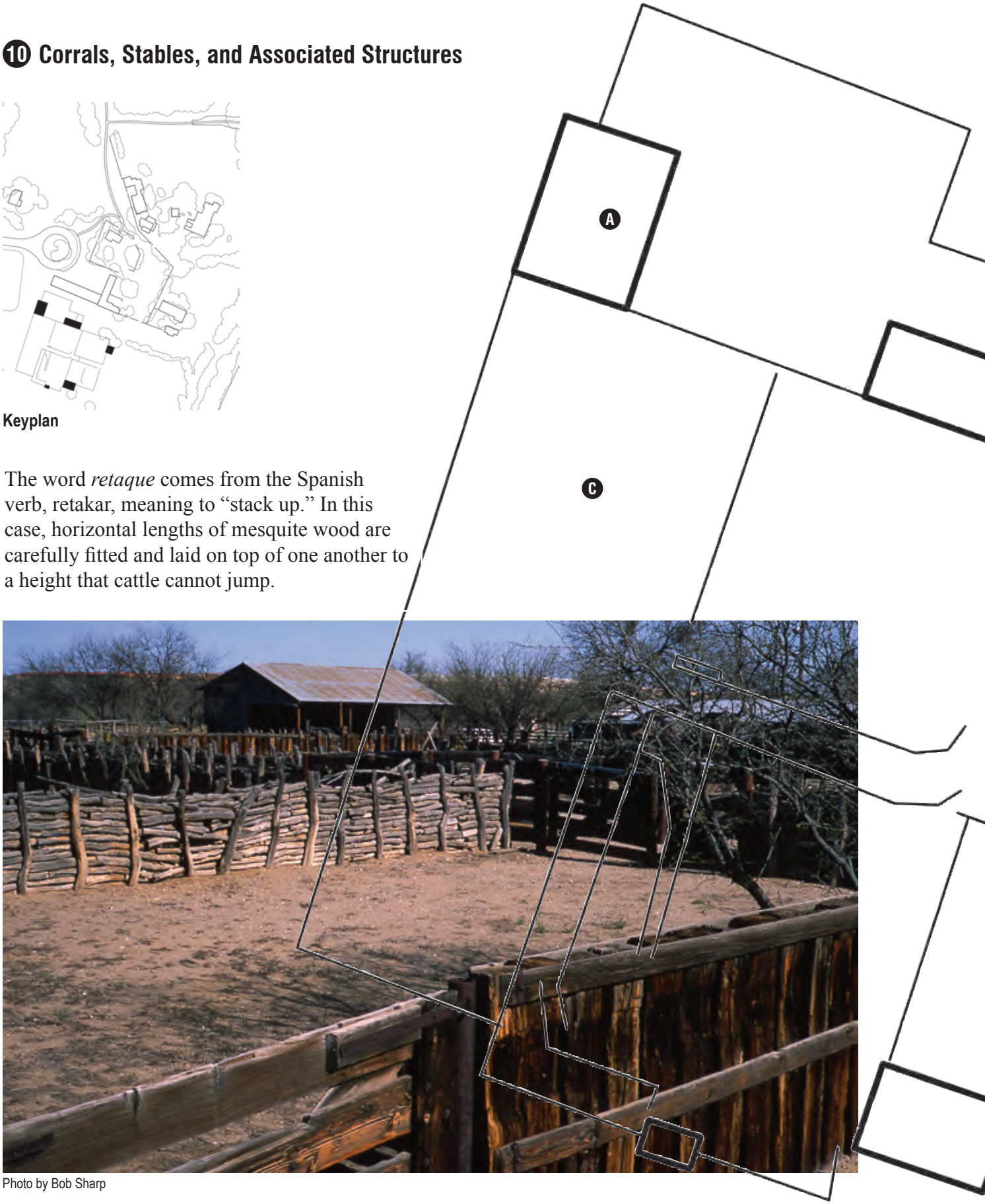


Photo by Bob Sharp

Note: Plan shown is for reference only. Measured drawings of the corrals and associated structures have not been completed.

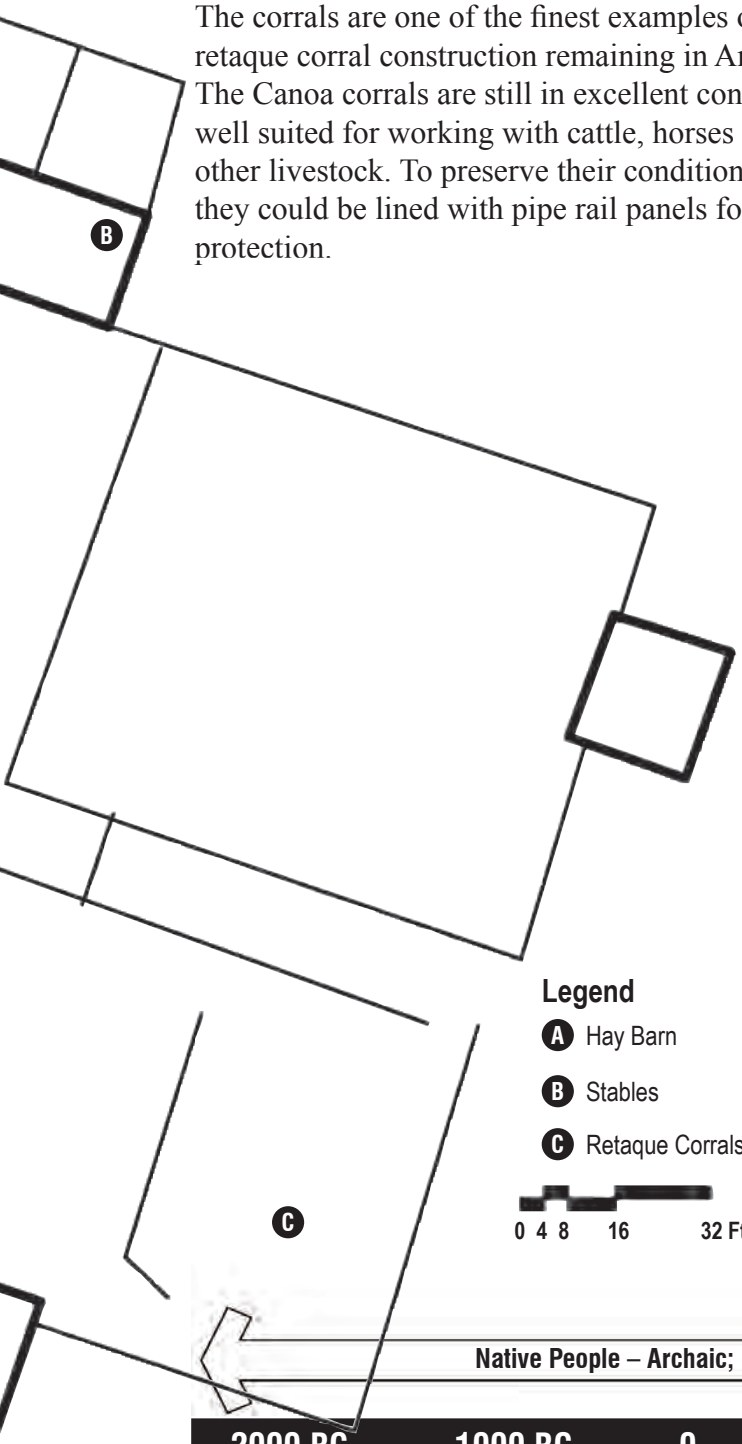
Proposed Use and Building Description

The southern edge of the Heritage Area is defined by the ranch's massive corrals. The historic corrals will be used to work heritage breed cattle and to share other cowboy and ranching skills and activities with the visitor.

The corrals are one of the finest examples of retaque corral construction remaining in Arizona. The Canoa corrals are still in excellent condition, well suited for working with cattle, horses and other livestock. To preserve their condition, they could be lined with pipe rail panels for protection.

Photo by Howell Manning, Jr.

Photo by Howell Manning, Jr.

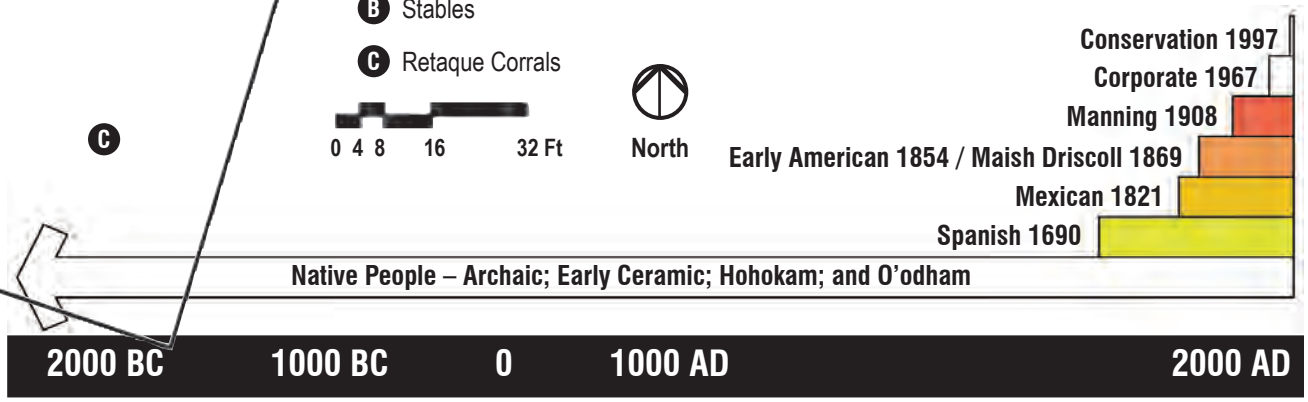


Legend

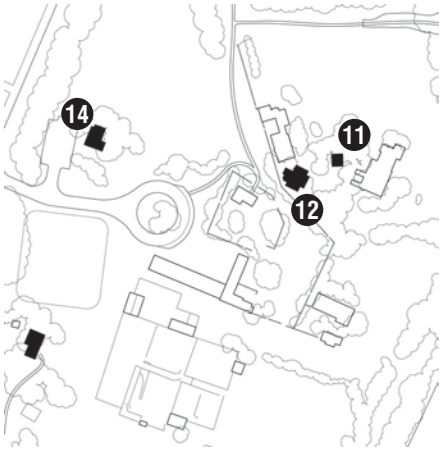
- A Hay Barn
- B Stables
- C Retaque Corrals

0 4 8 16 32 Ft

North

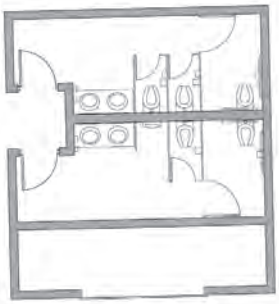


Heritage Area Visitor and Facility Support Buildings



Keyplan

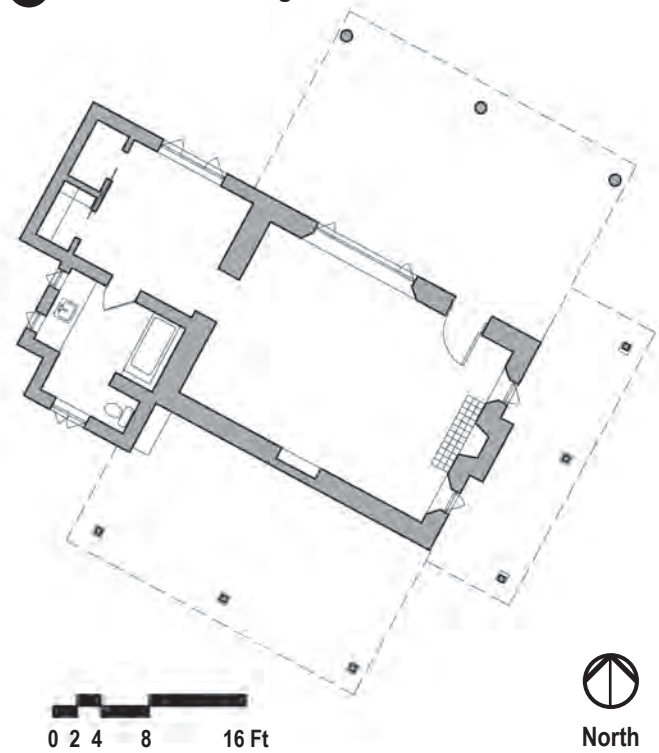
11 Restroom / Storage



Proposed Use and Building Description

New restrooms will be housed in the historic garage located between the Long House and the Big House. This wood frame structure can be adapted to provide accessible restrooms for visitors and is well positioned to serve receptions and events on the lawns surrounding both houses. The structure can easily be tied into the existing septic system.

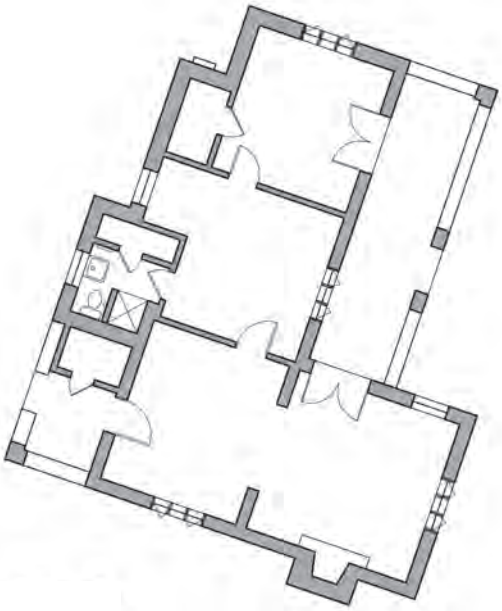
12 Volunteer's Lounge



Proposed Use and Building Description

Originally used as a guest house, this 850 square foot building contains a living room, bedroom, and bathroom. Mud adobe walls and deep shade structures help this building adapt to its desert setting. A cozy interior, featuring walnut paneling throughout, lends this building to active use by volunteers and docents. Structural upgrades, along with preservation and rehabilitation of the building, were completed in early 2007.

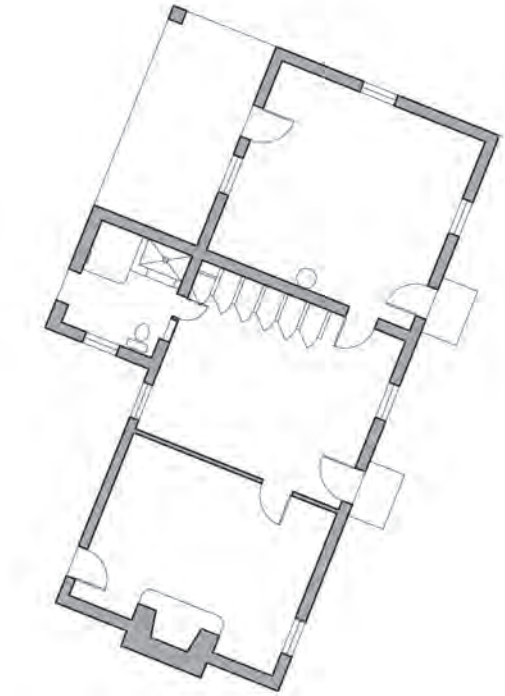
14 Caretaker's Cottage



Proposed Use and Building Description

This 1,000 square feet building was originally an employee cottage that included a living room, kitchen, office, bedroom, and bathroom. The stuccoed adobe wall surfaces are capped by a vernacular cross-gabled corrugated metal roof. Two ample porches give interest to the form, shading the interior of the building, and creating sheltered outdoor areas. Structural upgrades, along with preservation and rehabilitation of the building, were completed in early 2007.

Office for Trail Ride Operations



0 2 4 8 16 Ft

North

Proposed Use and Building Description

This 1,100 square foot building was used as a working bunkhouse. The plan is comprised of three main chambers and an attached bathroom and porch. Constructed between 1948 and 1955, it is the newest structure on the ranch and the only structure on site built from fired adobe. It is located away from the other residential structures and its principal façade faces east, possibly to allow visual surveillance of the nearby corrals. It will be used by the trail ride operator as an office and possible residence.

Heritage Area Visitor and Facility Support Buildings

Keyplan

Residence / Offices for Park Staff

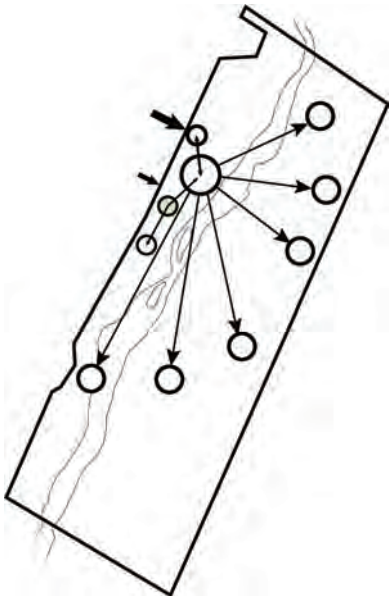
Proposed Use and Building Description

Commonly refereed to as the South House, this building is located south of the corrals. The 1,400 square foot structure appears to have developed over time, beginning sometime after 1935. It was once a traditional linear plan comprised of three adobe rooms. Over time the eastern porch was enclosed, small shed additions were added to the west, and several of the original window and/or exterior door openings were altered. The future use of this building will be offices for park staff.

Equestrian Center

The existing approximately thirty acre equestrian facilities would remain in its current location and could support both a specialty equestrian training center and a special event area and arena. The specialty training is seen as having little public benefit, but is an historic land use, a modern outgrowth of the ranching traditions of the region, and a good fit for the site. Special events might consist of rodeos, “mutton busting,” roping events, and “rawhide” pulls.

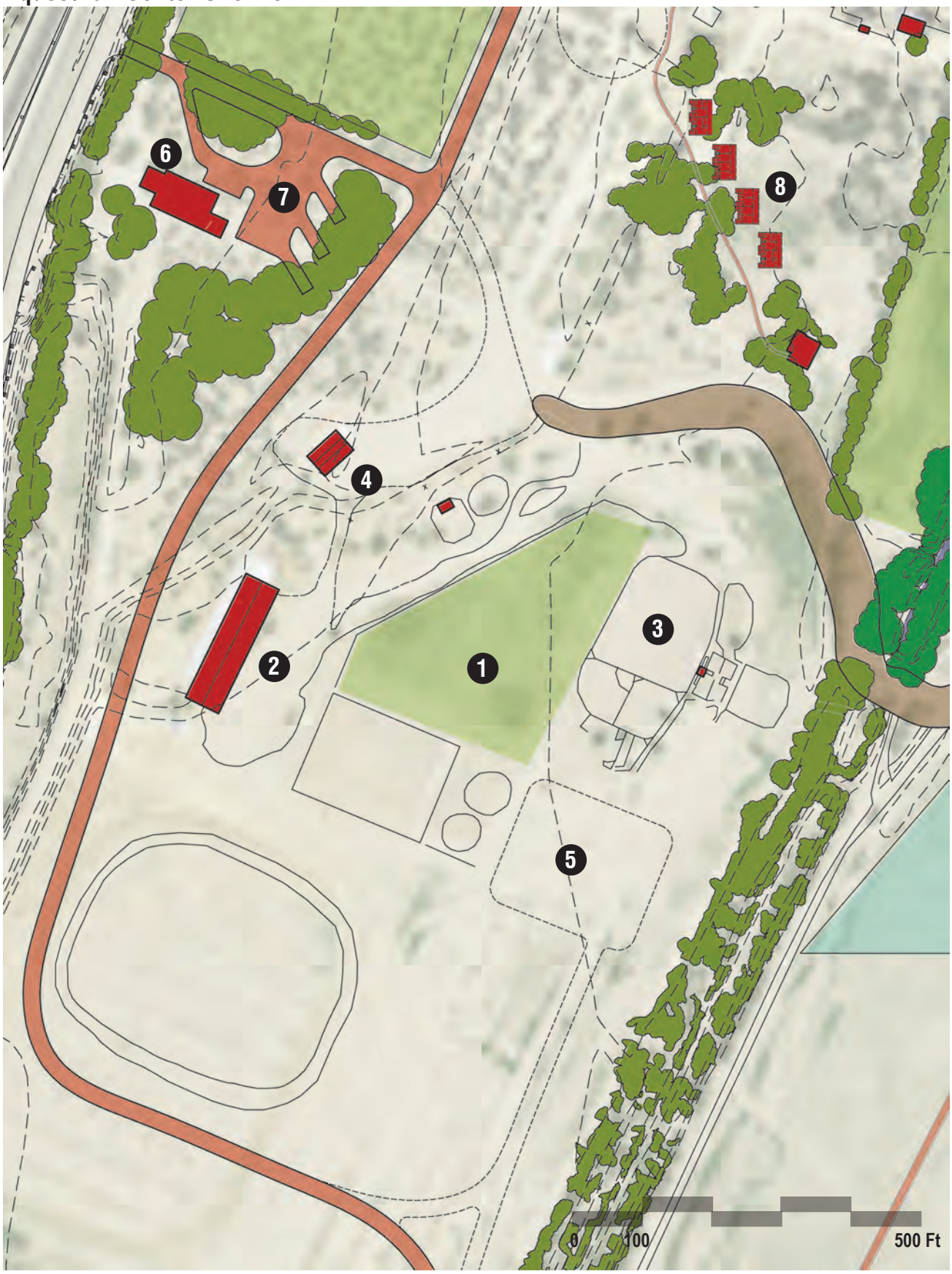
The landscape around the equestrian center can consist of predominately trees (mesquites) to accommodate the functional use of this area. A six acre forage area may be included.



Situated between the Heritage Area and the Equestrian Center, four new bunkhouses are proposed for overnight stays at the ranch. The bunkhouse will provide accommodations for a wide variety of people and groups visiting the ranch. School groups visiting the ranch for several days to take part in an environmental education program could stay at the bunkhouses. University-level, research interns could stay in a bunkhouse while working on special in-depth research projects. Groups could rent the bunkhouse for special events, including family reunions and office retreats. The bunkhouses would also provide housing for people attending the ranching skills workshops or other trainings at the ranch.

Each bunkhouse measures about 2,300 sq.ft. and features four sleeping rooms and a galley kitchen. A covered porch extends the entire length of building and functions as both the circulation spine and as a gathering place for activities. The four sleeping rooms can sleep up to four people each and feature two bunk

Equestrian Center Overview



Programmatic Elements

1. Forage Area
2. Existing Equestrian Center Stables
3. Existing Arena
4. Existing Equestrian Center Residence
5. Overflow Parking for Equestrian Events
6. New Maintenance and Service Building
7. R.V. Spaces for Seasonal Site Hosts / Caretakers
8. New Bunkhouses

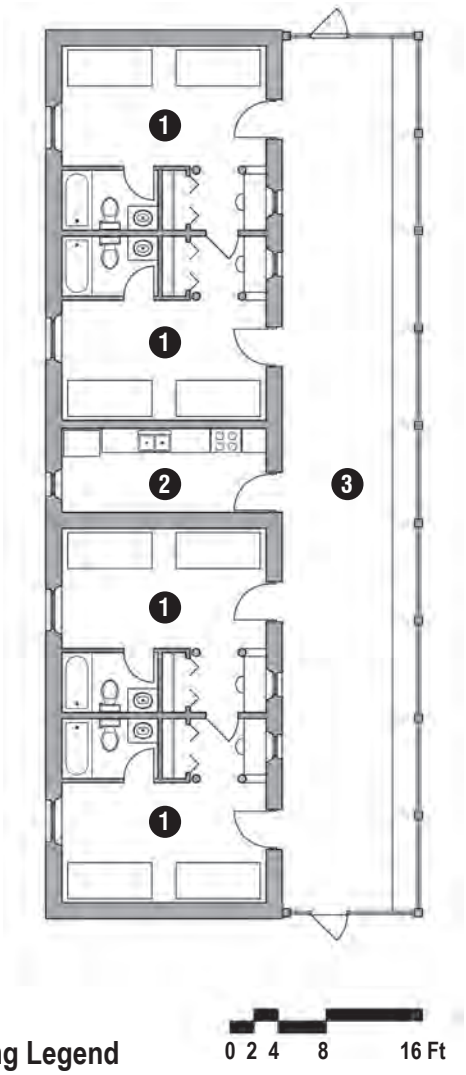
beds, a bathroom, closet, and small writing surface. A total of sixty-four individuals can be accommodated in the 16 sleeping rooms.

The buildings are modeled after the existing Foreman's House with its thick adobe walls and generous porch. The buildings should be sited to take advantage of views to the east and southeast. Additionally, passive solar and sustainable design practices could be accomplished through proper orientation of the building, appropriate placement of openings, and the use of local materials

The bunkhouse area landscape can serve as a transition between the heritage area and the more minimal landscape of the equestrian area. The landscape planting would re-establish native trees, shrubs, cacti and grasses found in the surrounding semi desert grassland and include trees such as mesquites, Mexican alder and hackberry to integrate with the heritage area. Pedestrian circulation will be defined from the bunk houses to the arena area.

A new maintenance and service building, to serve the entire park, is proposed adjacent to the Frontage Road at an existing driveway into the site. This area will also have space for three recreational vehicles to be used by seasonal site hosts or caretakers living at the park.

New Bunkhouse Plan



Building Legend

1. Four person bunkroom
2. Galley Kitchen
3. Porch / Gathering Space

Courtesy of www.ranchoesmeraldanogales.com

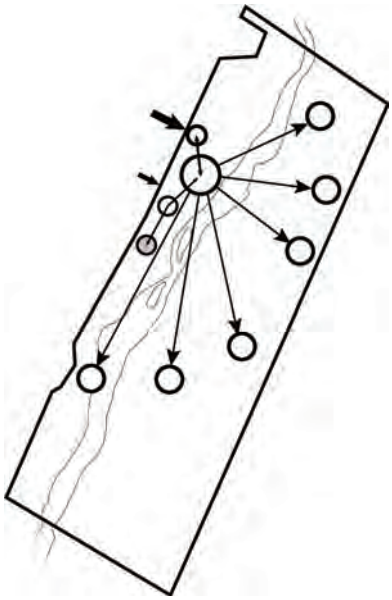
This page is blank

Courtesy of Statistical Research

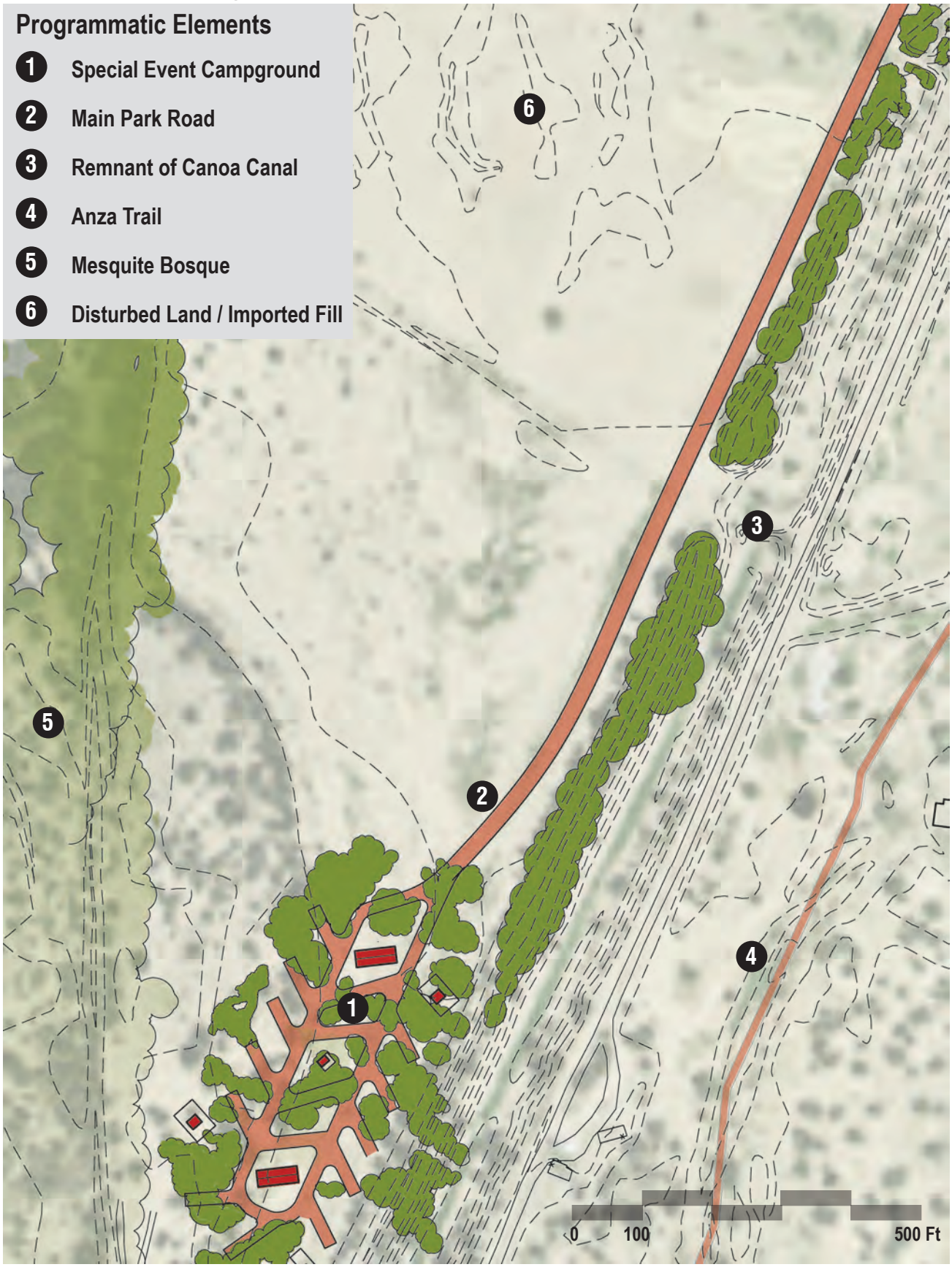
Special Events Campground

At the south end of the public access area, situated in the niche between the canal, historic reservoir, and mesquite bosque is a multi-use campground with twenty sites. It would be designed to accommodate equestrian trailers and intended as a camp site for Anza trail riders, both as a base camp and as an overnight stop for riders based up or down river. It would also be used as a site for overnight riders from the hack stable, star gazing events, scout troops or similar, but would not be available on a drop-in basis.

The campground landscape can serve several needs: shade and visual screening; integration of the camp area into the surrounding desert grassland/xeroriparian context; mitigate the disturbed land (imported fill from off-site) to the north; and to provide definition to the vehicular and pedestrian circulation. The planting strategy can begin with the preservation or transplantation of any significant native vegetation in the area and with the removal of any invasive plants. Additional planting of native mesquite, medium sized shrubs such as creosote, hackberry and palo verde, native bunch grasses and cholla cacti can further develop the structural diversity of the landscape for wildlife habitat. Mesquite and medium sized shrubs can be used where needed to buffer between adjacent conflicting uses. A native seed mix can be applied to the perimeter area, the main road edges and the disturbed land.



Special Events Campground Plan



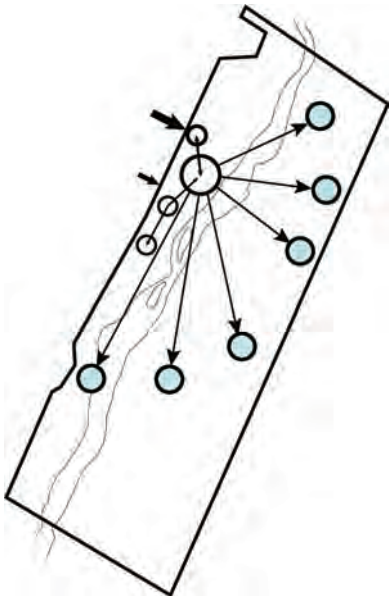
E

Courtesy of SRI / Richard Willey

Remote Interpretive Sites

Remote interpretive sites will offer visitors an opportunity for a more in-depth experience and understanding of the site and its history. The location of important site features and historical events can be revealed to the visitor by on-site interpretation taking the form of interpretive signage, or possibly dioramas, at focal points, and potentially at clearly identified demonstration reconstructions. Other interpretive techniques, utilizing the latest in wireless technology, are possible and are more fully discussed in the interpretation report accompanying this report.

In some cases, additional research and /or archeology is required to locate, identify, and interpret specific resources. Remote interpretive sites offer the prospect of seeing on-going research at the site.



Bringing visitors beyond the Heritage Area also provides opportunities to interpret the larger landscape. Areas of the Santa Cruz Valley and Santa Rita Mountains view sheds are intact and can be used to offer windows into the past and to contrast changes to the environment. Understanding how the landscape has changed is critical to understanding Canoa Ranch and its significance.

Many of these remote sites contain resources that are significant to tribal groups and researchers. The utmost care will be taken preserve and protect their condition and locations. In the case of archaeological sites, it is suggested that a representative location be selected for interpretation rather than an actual archaeological site. In most cases, guided, docent-led tours will be required to access remote interpretive sites.

Additional shade and cover at remote sites could be provided by enhancing the native vegetation with passive water harvesting.

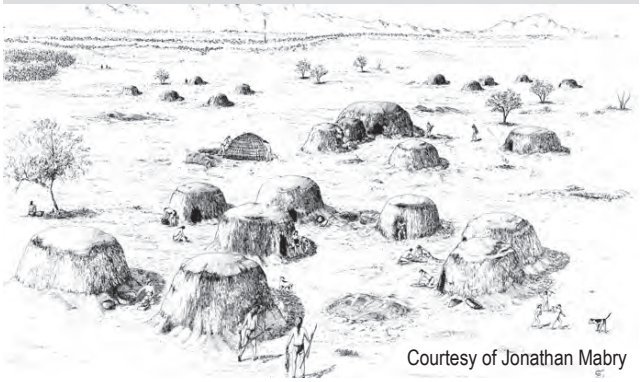
Remote Interpretive Sites Overview

Programmatic Elements

1. Native People
2. La Canoa / Spanish *Paraje*
3. Ortiz Ranch House
4. Canoa Inn and Lumber Camp
5. Stage Stop
6. Maish South House
7. Canoa Canal
8. Manning Era Improvements
9. Corporate Well Site
10. Conservation Site

Remote Interpretive Sites

1 Native People



Public visitation to significant archaeological sites will be prohibited. Trails with signage, or possibly dioramas, at focal points, and potentially at clearly identified reconstructions will provide a vantage into prehistory.

2 La Canoa / Spanish *Paraje*

La Canoa, the Spanish *paraje*, was a regular stop on the Camino Real and believed to be the spot of the Anza camp site. It may have been located at the seep site and / or the traditional crossing point at the Santa Cruz River. Additional research and / or historic archaeology will be required to locate, identify, and interpret.

3 Ortiz Ranch House

The Ortiz homestead is believed to have been located on the current 4,800 acres, but additional research and archaeology needs to be completed to locate this site.

4 Canoa Inn and Lumber Camp

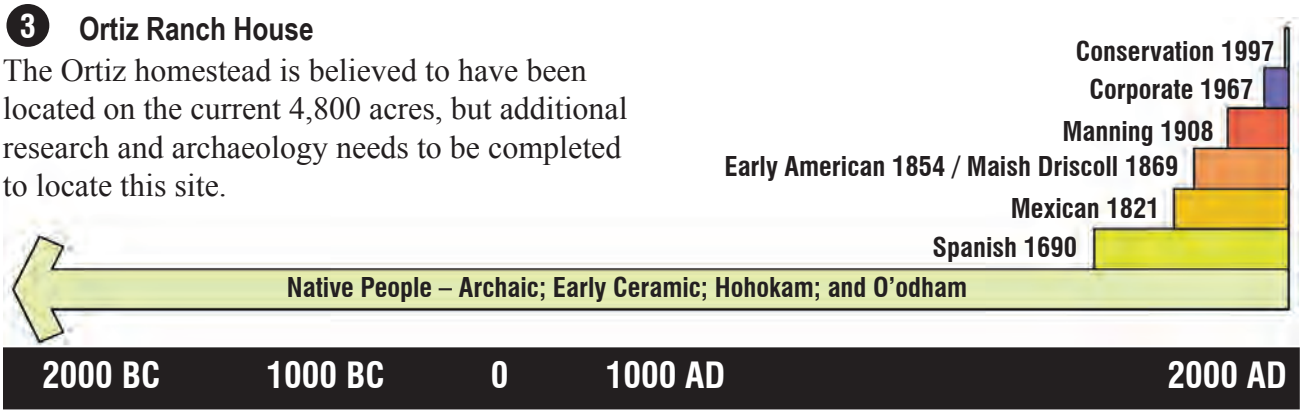
The Canoa Inn, site of the Tarbox massacre, Crossroads Tavern and lumber sales operation are believed to have been located in the southeast corner of the current 4,800 acres but additional research / archaeology will be required to located and interpret.

5 Stage Stop

The Canoa Stage Station was possibly located west of the river, towards the southern boundary of the site. Maish and Driscoll also are believed to have developed buildings at the site, but to date only scattered artifacts have been located and additional research and / or archaeology is required.

6 Maish South House

Maish and Driscoll are believed to have had a structure near the head of the Canoa Canal. Additional research and / or archaeology is required.



7 Canoa Canal

In 1887, Maish and Driscoll initiated the Canoa Canal Company with the intention of bringing water to Tucson. While they were not successful in bringing water to Tucson, over one mile of canal was constructed and it is largely intact in its original alignment. Additional research is required to understand the use of the canal.

8 Manning Era Improvements

Reshaping of the land for irrigation and agriculture during the Manning Period left an indelible impression on the land. The west bank of the river is rich with irrigation, water collection, flood control, and ranching and agricultural infrastructure (canal head, pit silos, berms, concrete channels, lift stations, well sites, and so on) that tell an important story of human interaction with the land.

9 Corporate Well Site

Water is a commodity highly valued by industry, who have gone to enormous lengths to control it for their use. Water rights at Canoa have been separated and sold for mining, limiting how the land can be used. Several wells remain active, some near the public access zone, and could be interpreted to tell the contemporary water story.

10 Conservation Site

Canoa Ranch was purchased by Pima County for conservation purposes. A number of conservation projects are already underway, including flood plain monitoring and a burrowing owl habitat project. In the future, many more sites will undergo ecological restoration and natural succession offering a variety of interpretative opportunities.

Capital Costs

Rehab historic structures:	$4,250,000
New buildings:	$4,200,000
Exhibits:	$1,500,000
Flood Control/reclaimed water :	$2,800,000
Landscape/field development:	$1,200,000
Trails and recreation:	$ 800,000
Anza Trail:	$ 800,000
Corrals, hay barn, and stables:	$ 450,000
Campground:	$ 500,000
Equestrian Center:	$ 200,000
Remote sites:	$ 750,000
Roadways;	$ 400,000
Water and sewer infrastructure:	$ 300,000
Subtotal:	$18,150,000
Contingency @ 10%	$1,815,000
Total	$19,965,000