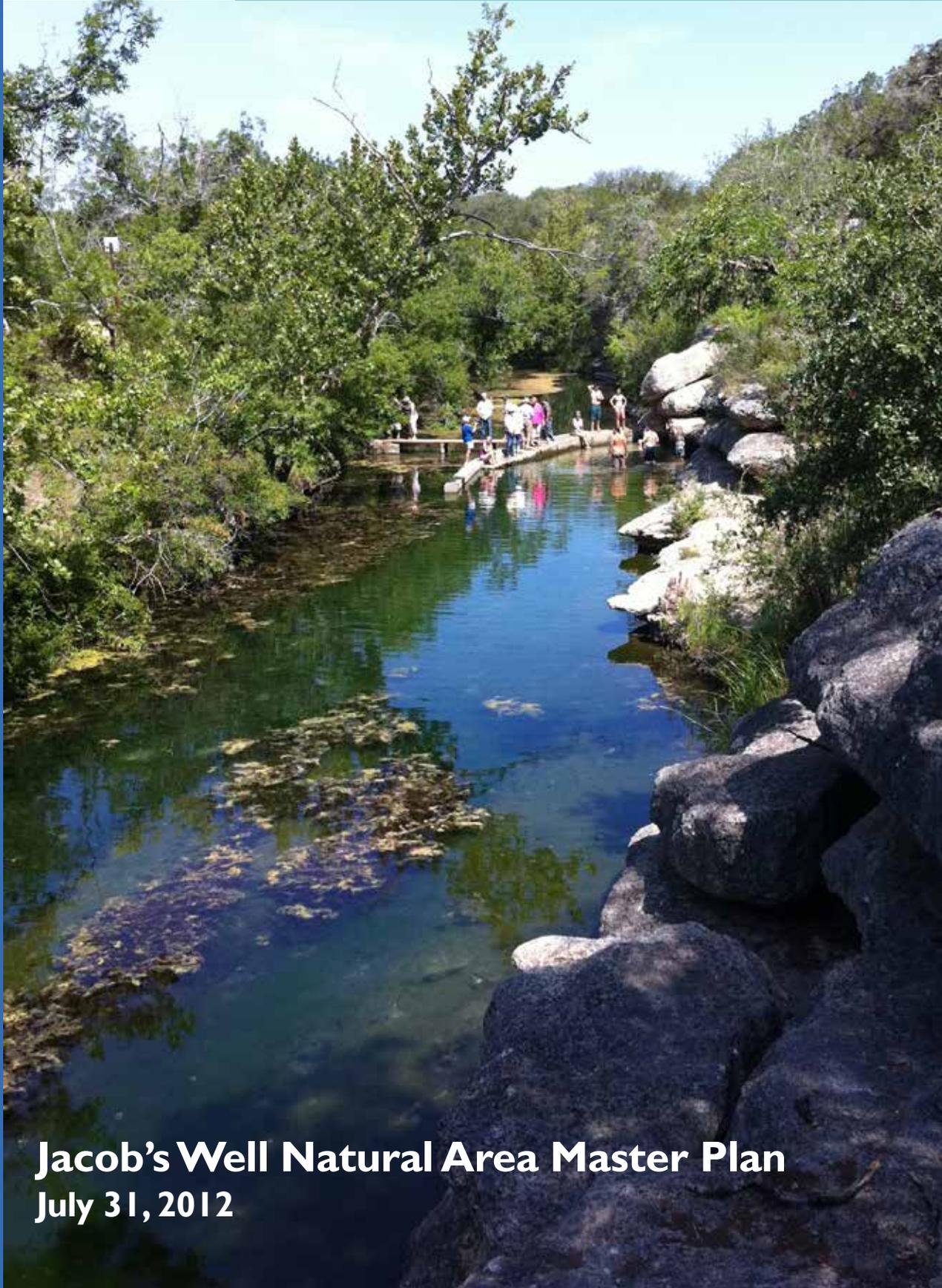


“If there is magic on this planet, it is contained in water.”
-Loren Eiseley



Jacob's Well Natural Area Master Plan
July 31, 2012

Jacob's Well Natural Area Master Plan

*“Planning is bringing the future into the present
so that you can do something about it now.”*

-Alan Lakein

Prepared for:
Hays County

Prepared by:
RVI Planning + Landscape Architecture
Clayton & Little Architects
Banks and Associates

Acknowledgements

Hays County Commissioners:

Honorable Bert Cobb, MD, Hays County Judge

Honorable Debbie Ingalsbe, Commissioner, Precinct 1

Honorable Mark Jones, Commissioner, Precinct 2

Honorable Will Conley, Commissioner, Precinct 3

Honorable Ray Whisenant, Commissioner, Precinct 4

Hays County Staff:

Jeff Hauff, Grants Administrator

Jerry Pinnix, Parks Director

Mark Kennedy, Chief, DA Civil Division

Stakeholders Group Members:

Gary Amaon Representative, Hays Co. Parks & Open Space Advisory Board

David Baker Representative, Wimberley Valley Watershed Assoc.

Jim Camp Representative, Precinct 2

Will Conley Representative, Woodcreek North

Sara Dishman Representative, Precinct 3

Eric Eskelund Representative, City of Woodcreek

Bob Flocke Representative, City of Wimberley

Dr. Joan Jernigan Representative, Hays Trinity GCD

Pamela McAfee Representative, Precinct 4

Naomi Narvaiz Representative, Precinct 1

Winton Porterfield Representative, County Judge

Rachael Ranft Representative, The Nature Conservancy

Andrew Sansom Representative, Texas State University/River Systems Institute

Jimmy Skipton, Representative, Hays Trinity GCD

Jeff Vaasgard Representative, Wimberley Valley Watershed Assoc.

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EXECUTIVE SUMMARY

Vision

Jacob's Well has long been an attraction to residents and visitors of the Texas Hill Country. An artesian well and part of an extensive underground cave system, Jacob's Well contributes to the recharging of the Edwards Aquifer. Because of its natural beauty and ecological benefits, this project is a prime opportunity to highlight the importance of water and the natural environment

With over 80 acres surrounding the well, this project will provide an open space amenity as well as an educational resource for Hays County residents and visitors to the area. The educational philosophy is based on the principle that people learn best in the outdoors through direct contact with the natural world. The purpose of the project is to promote conservation and create stewards of the well and the surrounding Texas Hill Country by providing opportunities for educational and passive recreational programs.

Project Goals

Preserve the Well



Place for the Community



Environmental Education



The following objectives support the goals.

- Teach about the outdoors in the out-of-doors
- Promote educational awareness, appreciation and stewardship of Jacob's Well
- Promote a conservation ethic that visitors can take with them
- Provide an open space amenity for Hays county residents of all ages
- Become part of a network of parks and open space
- Protect a natural resource which will enhance the quality of life and well being of residents, visitors, and future generations
- Regulate access to site in order to maintain and restore water quality and infiltration
- Consider LEED rating and implement Net Zero principles when possible

Background

In 2010, Hays County acquired 50 acres of this site. In conjunction with this purchase, the Wimberley Valley Watershed Association (WVWA) transferred another 31.5 acres to the site. Initially serving as stewards of the property, WVWA has been active in giving both school group and public tours. After purchasing the property, the County began seeking input from the community in order to create a master plan that reflects the needs and desires

of the county residents. Residents, local landowners, business representatives, and elected officials were invited to join a stakeholders group. This group provided input to the design team through a series of meetings. Preliminary master plan designs were presented to the community with Open House meetings for further input. The design team incorporated comments from the stakeholders and community open house participants along with County staff to create this master plan.

Portions of this site are governed by two conservation easements. The following table is a summary of the easement restrictions.

JACOB'S WELL			
Easement Restrictions - Summary			
USE	RESTRICTION	USE	RESTRICTION
Impervious Cover	varies between 5% and 6% of NSA (outside the floodplain and on land less than 20% slope). Decomposed gravel is calculated at 50%.	Recreational Uses	Hunting and fishing are not allowed.
Existing Improvements	None within 100 feet of the 100 year floodplain. All structures to be visually screened from Cypress Creek. Refer to easement for additional limitations.	Destruction of Natural Habitat	May remove exotics and provide firebreaks. Except in gardens, no planting of non-natives allowed. No change in natural habitat in any manner. Non native trees, shrubs and plants to be removed.
Timber Harvest	Thinning to be consistent with conservation of endangered species habitat.	Hydrology	No additional water extraction allowed. The existing well may be utilized. No water impounding structures on Cypress Creek.
Grazing	None for commercial purposes. Allowable for recreation.	No Biocides	No non-Organics allowed. Fire ants may be managed with Logic.
Home Business	Only if does not violate purposes of easement	No Dumping	None allowed.
Mineral Extraction	None Allowed	No Pollution	None allowed.
Excavation	None allowed outside of uses above.	Predator Control	Check with Grantee.
Density	May not transfer rights or use other property in calculations.	Commercial Development	None except related to recreational /eco tourism.

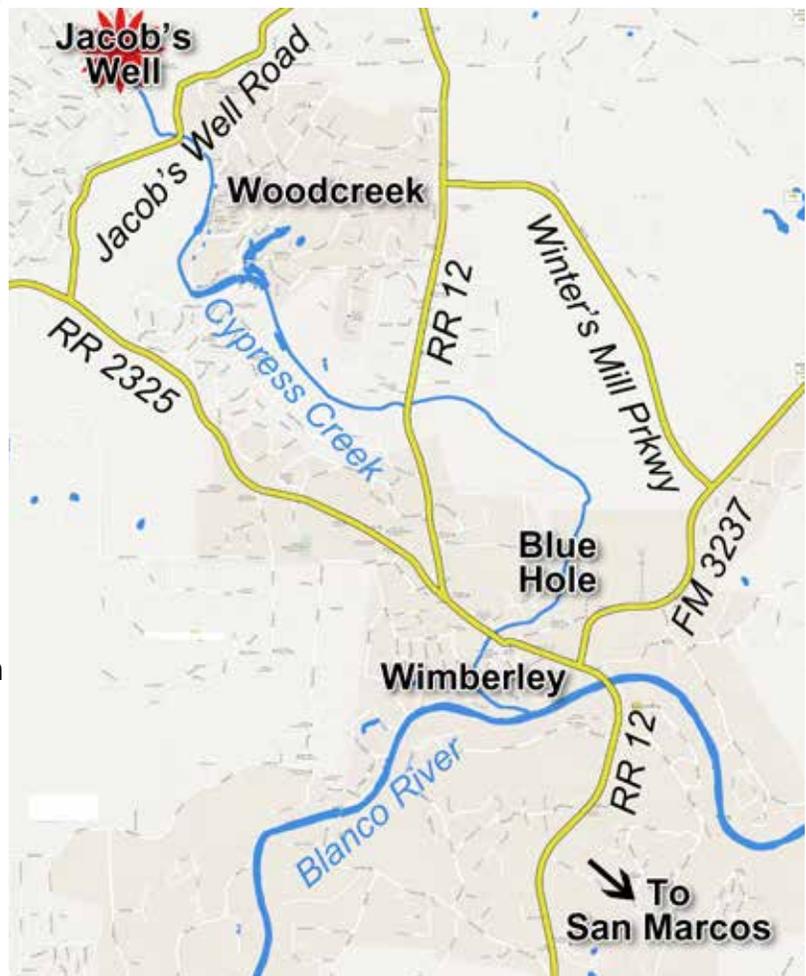
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PROJECT OVERVIEW

Regional and On-site Connectivity

Jacob's Well Natural Area is located outside Wimberley and adjacent to Woodcreek. Because the project is surrounded by neighborhoods, visitors will come by automobile, bicycle, and walking. Automobile parking will be limited on the north and south end of the project. Bicycle parking will be provided near entries but trails inside the project are for pedestrians only except for emergency and maintenance vehicle access. Blue Hole park is located downstream along Cypress Creek.

The site is accessed by a variety of users. For generations the Well has attracted people for drinking water, recreation, fishing and hunting, spiritual nurturing, nature and wildlife viewing, and research. Several divers have died in the underwater caves and today only divers with permits may enter the caverns. U.S. Geological Survey monitors the water flow and quality. The intent of the project is to maintain access to the public and researchers and emphasize environmental education as it pertains to water quality, groundwater infiltration and preservation for generations to come.



Site Analysis



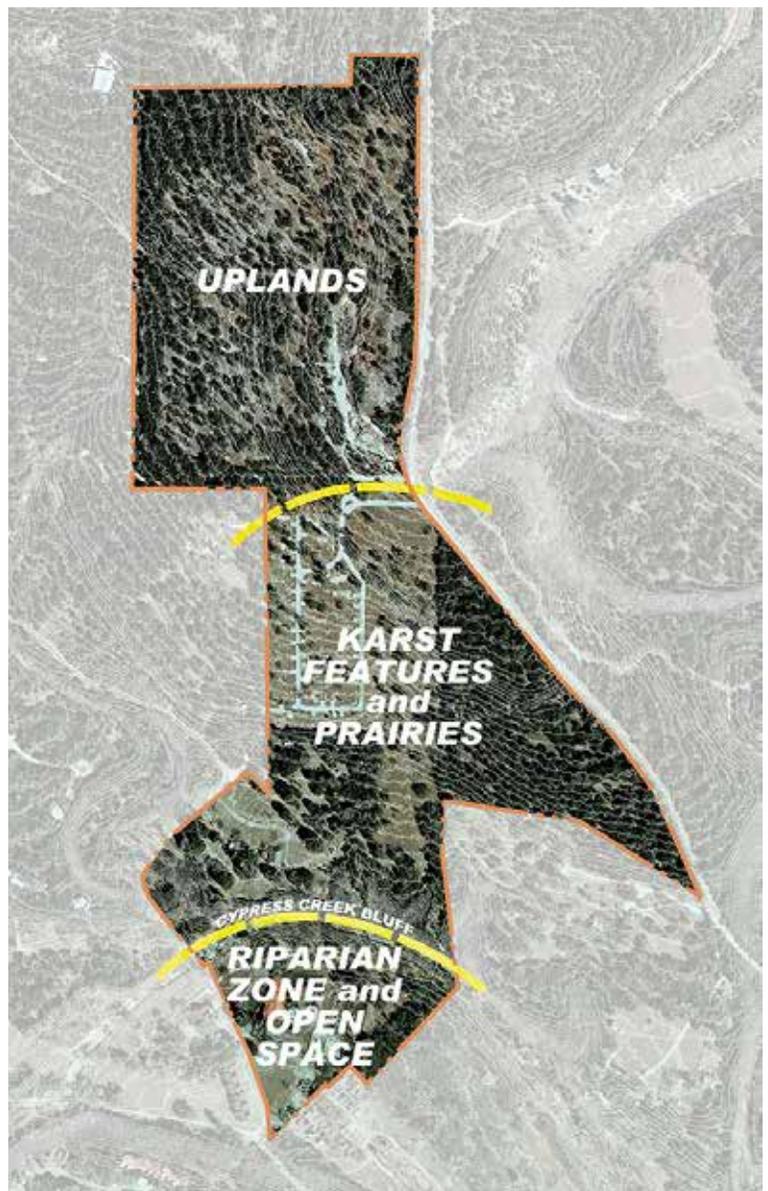
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DESIGN PRINCIPLES

Overview

Promoting a conservation ethic in the general public and thus enhancing the long term protection of the well is the goal of the project. Visitors will take away lasting memories of an inspiring educational experience and a yearning to return with the desire to preserve this Hill Country ecosystem.

There are three distinct areas on this site, the Uplands, Karst features and prairies to the north of Cypress Creek bluff, and a riparian zone with open space inside the floodplain south of the creek. These areas are broken down further into zones. On the following pages, each zone is identified and a list of potential activities, green infrastructure, improvements and restoration opportunities are listed.





Uplands



Range Management



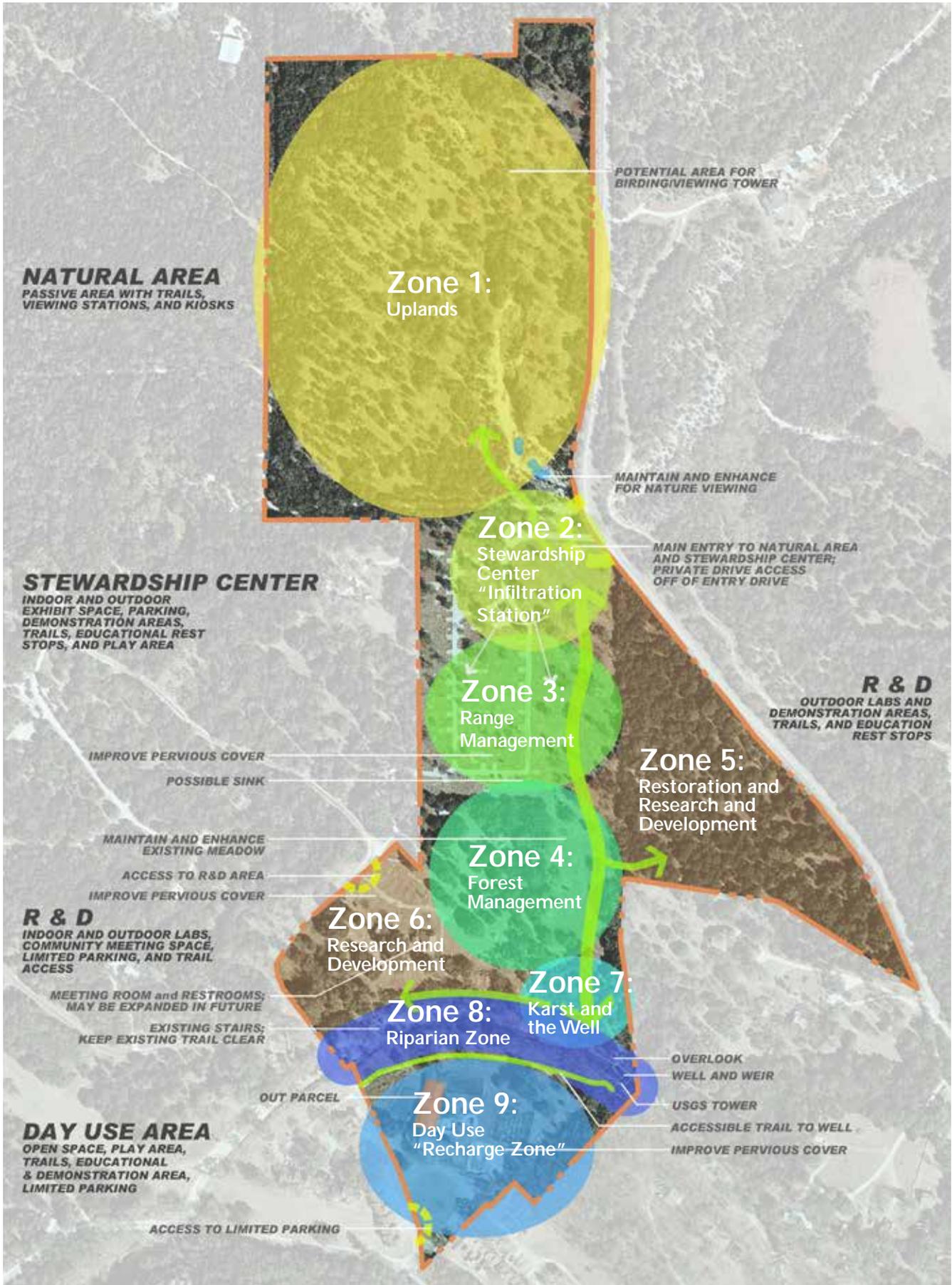
Forest Management



Riparian Habitat



The Well





Directional Signage



Informational Signage



Mulch Trails



Blind w/ Birding Stats or Donor Names on Slats

Example of Amenities



Ephemeral Pond at Caliche Pit



View of Hill Country

Existing Site Photos

Zone I: Uplands

Activities:

- Bird watching and wildlife viewing
- Hiking

Green Infrastructure:

- Mulch trails
- Rainwater collection on roofs at viewing blinds
- Site furnishings and decks of recycled materials

Improvements:

- Bird blinds with informational/interpretive signage
- Viewing Platform
- Water collection for wildlife and bird feeders/food source
- Trails

Restoration:

- Enhanced native planting to attract wildlife eg. fruit bearing shrubs and trees, grasses and forbes
- Wetland planting and soil stabilization
- Invasive species management





Indoor and Outdoor Classrooms



Vegetated Parking Runoff Filter



Nature Play Areas



Educational Stations

Example of Amenities



Future Building Next to Slope Between Trees

Existing Site Photos

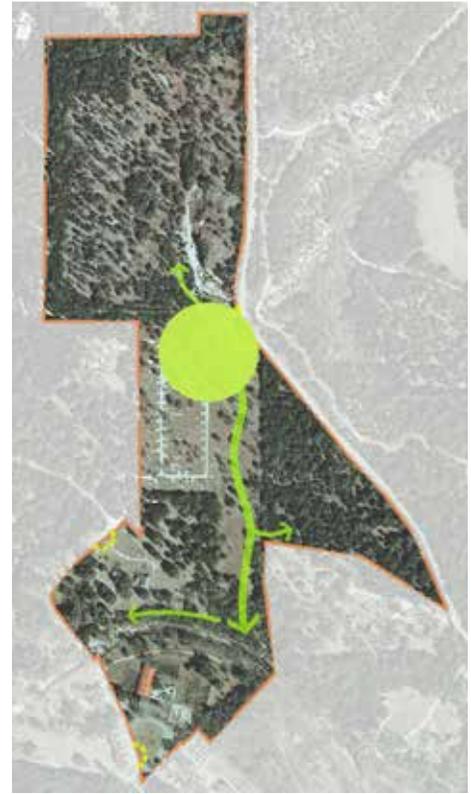
Zone 2: Stewardship Center

Activities:

- Outdoor and Indoor Exhibits
- Play area and demonstration gardens
- Weather station to monitor local conditions
- Station to show building energy use and water collection / use
- Picnic areas
- Self guided tours and docent lead tours

Green Infrastructure:

- Decomposed granite trails
- Recycle concrete as road base and asphalt for surfacing
- Site furnishings and decks of recycled materials
- Trash and recycle receptacles
- Architecture as an example of best practices including HVAC, solar water heating and energy collection, rainwater collection, fly ash concrete mix floor/foundation, on site materials re-use
- Sedimentation pond to filter runoff from parking overflow to secondary pond with enhanced vegetation to attract wildlife



Improvements:

- Entry monumentation and wayfinding signage
- Impervious parking surface to capture and filter runoff before infiltrating ground
- Utilize existing drive for a single entry shared with access easement
- Parking to be screened from road utilizing existing vegetation
- Bike racks to encourage visitor and employee alternate transportation
- Utilize net zero building practices
- Metal roofs to reflect heat and collect water
- Cisterns to hold collected water
- Play area
- Pavilion linked to Stewardship Center
- Trails

Restoration:

- Wildlife habitat enhancement with native planting
- Invasive species management



Educational Signage



Decomposed Granite Trails



Prairie Restoration

Example of Amenities



Existing Site Photos

Zone 3: Range Management

Activities:

- Trail with educational rest stops
- Demonstrate water flow across site and link uplands, range, and riparian area. Educational rest stop at existing sink.
- Orienteering and/or geocaching trail
- Camping by special permit, potential future use

Green Infrastructure:

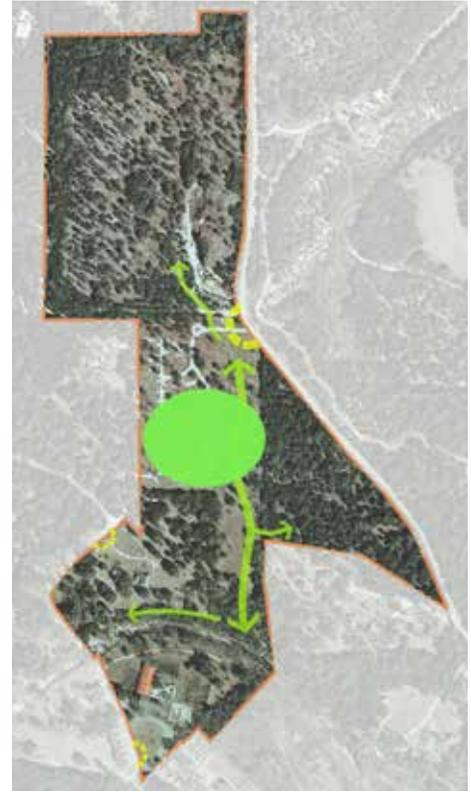
- Decomposed granite trails
- Remove existing drive and reuse as road base material
- Decrease impervious cover and demonstrate area as rain gardens, wildlife habitat, educational opportunities, and infiltration to groundwater supply
- Site furnishings of recycled materials
- Trash and recycle receptacles

Improvements:

- Amphitheater as part of interpretive site
- Trails

Restoration:

- Rehabilitation of prairie
- Enhanced vegetation with native plants to filter runoff into sink
- Invasive species management





Decomposed Granite Trails



Enhance Existing Landscape to Attract Wildlife



Prairie Restoration

Example of Amenities



Existing Meadow



Existing Woodland with recent clearing

Existing Site Photos

Zone 4: Woodland Management

Activities:

- Trail with educational rest stops
- Demonstrate water flow across site and link uplands, range, and riparian area.

Green Infrastructure:

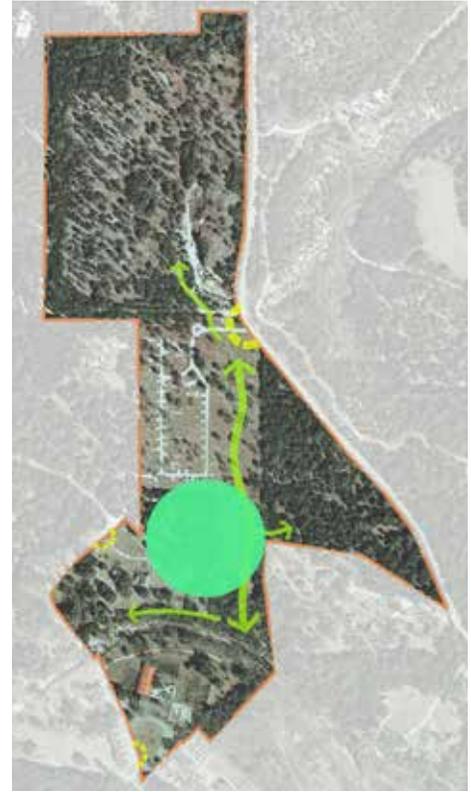
- Rainwater collection on roofs
- Site furnishings of recycled materials
- Decomposed granite trails

Improvements:

- Informational kiosk
- Trails

Restoration:

- Rehabilitation of woodlands eg. limbing/removing cedars (*Juniperus ashei*)
- Enhance grasses and understory plants using native plants
- Invasive species management





*Maintenance and Gathering Space;
Bicycle Parking*

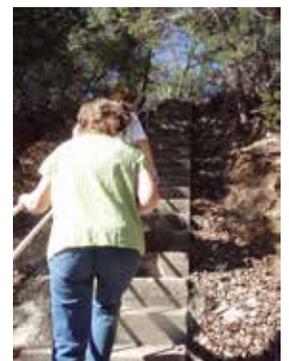


Research and Demonstration Plots

Example of Amenities



Existing Entry to Camp Jacob



*Existing Stairs from
Riparian Area to
Camp Jacob*

Existing Site Photos

Activities:

- Research labs both interior and exterior
- Community meetings and seminars both inside and outside
- Educational rest stop
- Nature and wildlife viewing to riparian area
- Well and natural area oversight
- Demonstrate water flow across site and link uplands, range, and riparian area

Green Infrastructure:

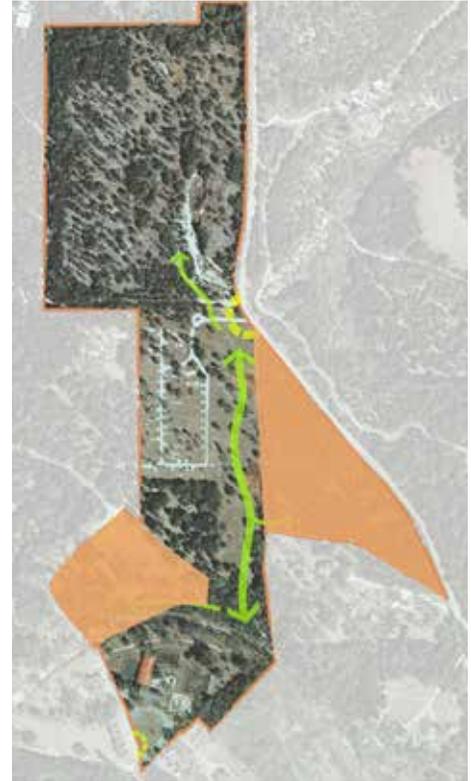
- Decomposed granite trails
- Remove existing roads, parking and pads to decrease impervious cover
- Rain water collection from roofs
- Site furnishings of recycled materials
- Trash and recycle receptacles

Improvements:

- Maintain and enhance existing building for labs, offices, and meeting space
- Pavilion
- Park host, caretaker, or researcher's living quarters
- Improve parking surface and capture and filter runoff before infiltrating ground
- Secured entry
- Bike racks to encourage visitor and employee alternate transportation
- Bird blinds with informational/interpretive signage
- Trails

Restoration:

- Rehabilitation of woodlands
- Study plots for woodland / savannah management
- Maintain vegetated buffer to road
- Invasive species management





Outdoor Classroom



Example of Amenities



Existing Stairs from Well to Camp Jacob



Jacobs Well



Karst landscape above well



Jacobs Well

Existing Site Photos

Zone 7: Karst and the Well

Activities:

- Trails with educational rest stops
- Demonstrate water flow across site and link uplands, range, and riparian area.
- Demonstrate woodland management eg. limbing/re-moving cedars

Green Infrastructure:

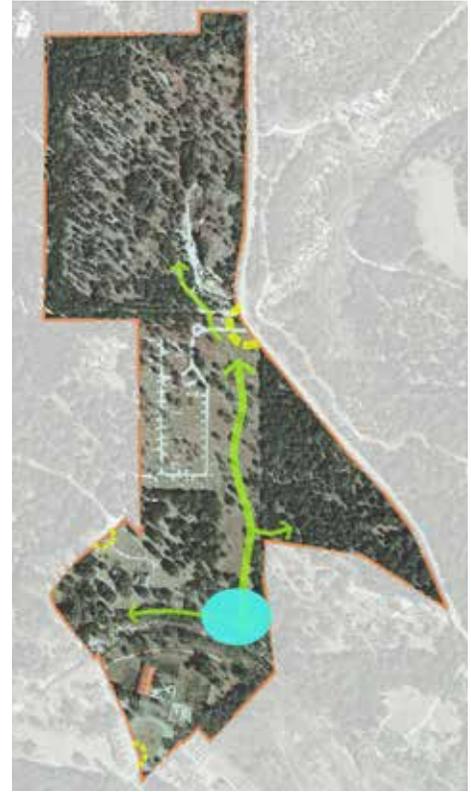
- Decomposed granite trails
- Rainwater collection on roofs
- Site furnishings and deck of recycled materials

Improvements:

- Overlook / outdoor classroom
- Information/interpretive signage
- Water collection for wildlife and bird feeders/food source
- Trails and interpretive sites

Restoration:

- Use fallen trees on site to create habitat and bank stabilization
- Enhance native plants for bank stabilization
- Invasive species management





Cypress Creek



Wetland Vegetation



Existing Weir



Existing Accessible Trail and Gate

Existing Site Photos

Zone 8: Riparian Zone

Activities:

- Demonstrate water flow across site and link uplands, range, and riparian area
- Demonstrate water flow to the creek and downstream
- Accessible trail with educational rest stop at existing USGS station

Green Infrastructure:

- Site furnishings and decks of recycled materials
- Keep site free of excess materials to prevent wash out during a major rain event

Improvements:

- Maintain existing weir
- Trails
- Fencing to limit access

Restoration:

- Enhance riparian zone using native plants
- In key areas, move trail to reduce erosion
- Use native plants for bank stabilization and erosion control
- Invasive species management





Picnic Area



Identification / Boundary Wall

Example of Amenities



Existing Condos and Tennis Court along Woodacre Drive



View from Condos toward Cypress Creek

Existing Site Photos

Zone 9: Day Use

Activities:

- Open space
- Picnic and barbecue
- Play area
- Trails
- Demonstrate water flow across site to riparian area
- Demonstrate use of native plants for a variety of landscape types including prairie, forest and riparian
- Outdoor classroom near well

Green Infrastructure:

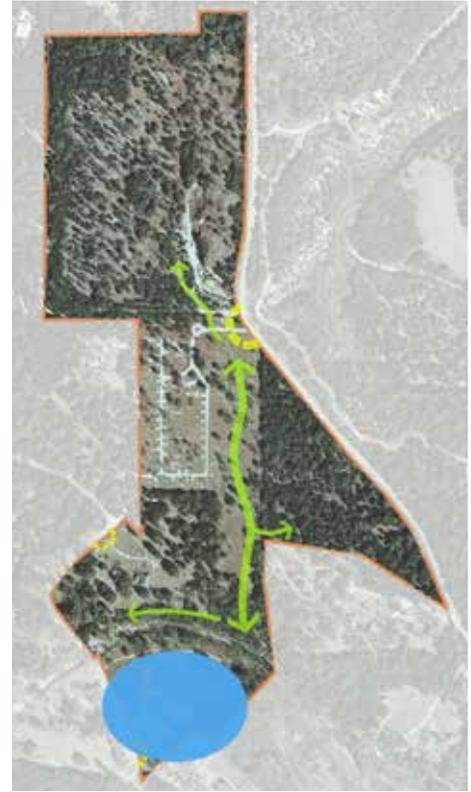
- Recycle concrete as road base and asphalt for surfacing
- Sedimentation pond to filter runoff from parking with enhanced vegetation to attract wildlife
- Remove existing parking, pads, and courts to decrease impervious cover
- Reuse materials from demolished buildings on site
- Decomposed granite trails
- Site furnishings and deck of recycled materials
- Trash and recycle receptacles

Improvements:

- Parking surface runoff to be captured and filtered before entering creek; parking to be limited
- Access and circulation improvements to limit number of visitors at the well to a maximum of 25 people
- Fencing: controlled access to well
- Informational and wayfinding signage to encourage users to visit the stewardship center
- Bike racks to encourage visitor alternate transportation
- Pedestrian entry with limited access to well
- Entry structure

Restoration:

- Vegetated filter strip to creek
- Rehabilitation of landscape including native plants to improve water quality and ground infiltration
- Invasive species management



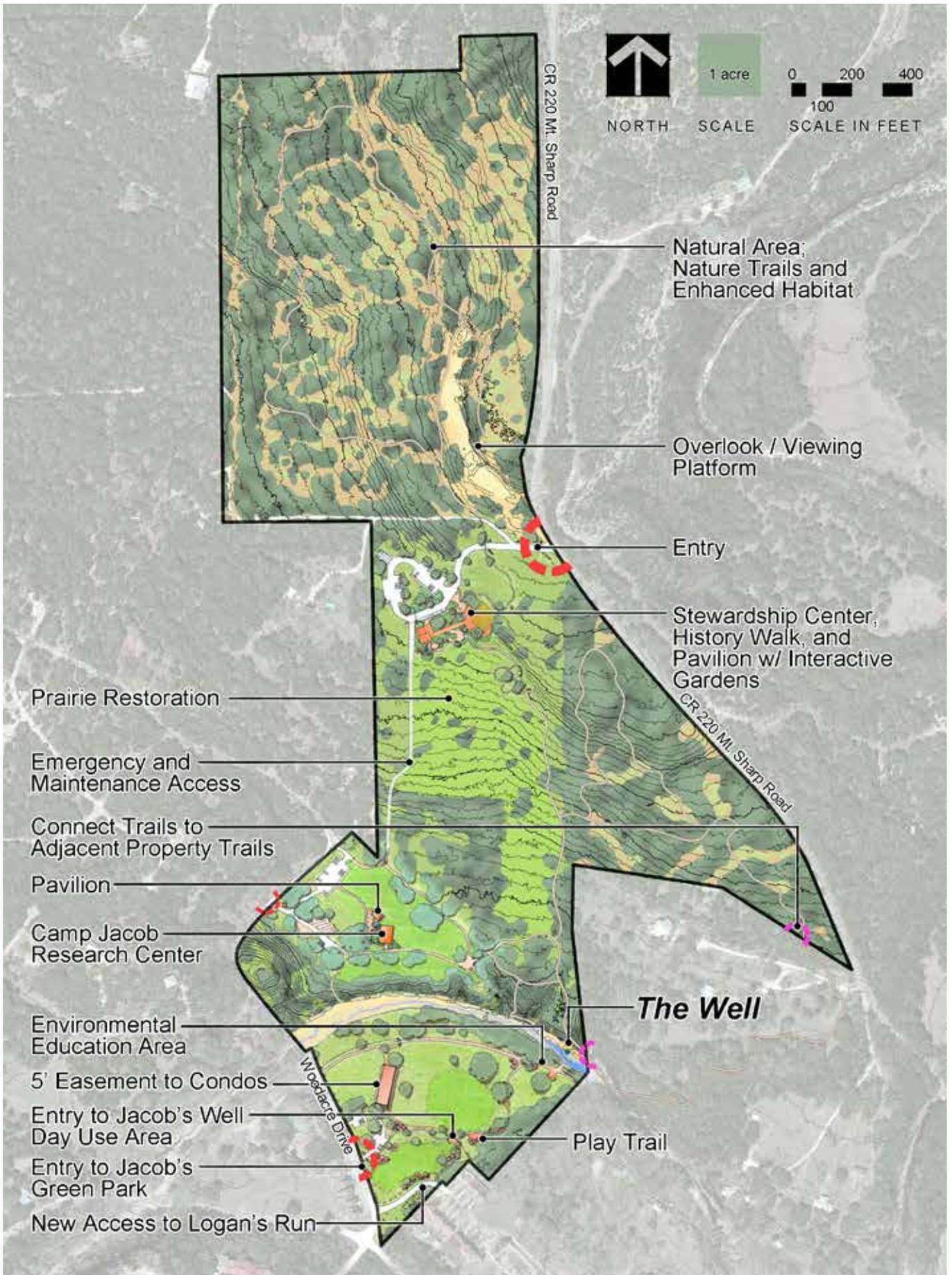
4

MASTER PLAN

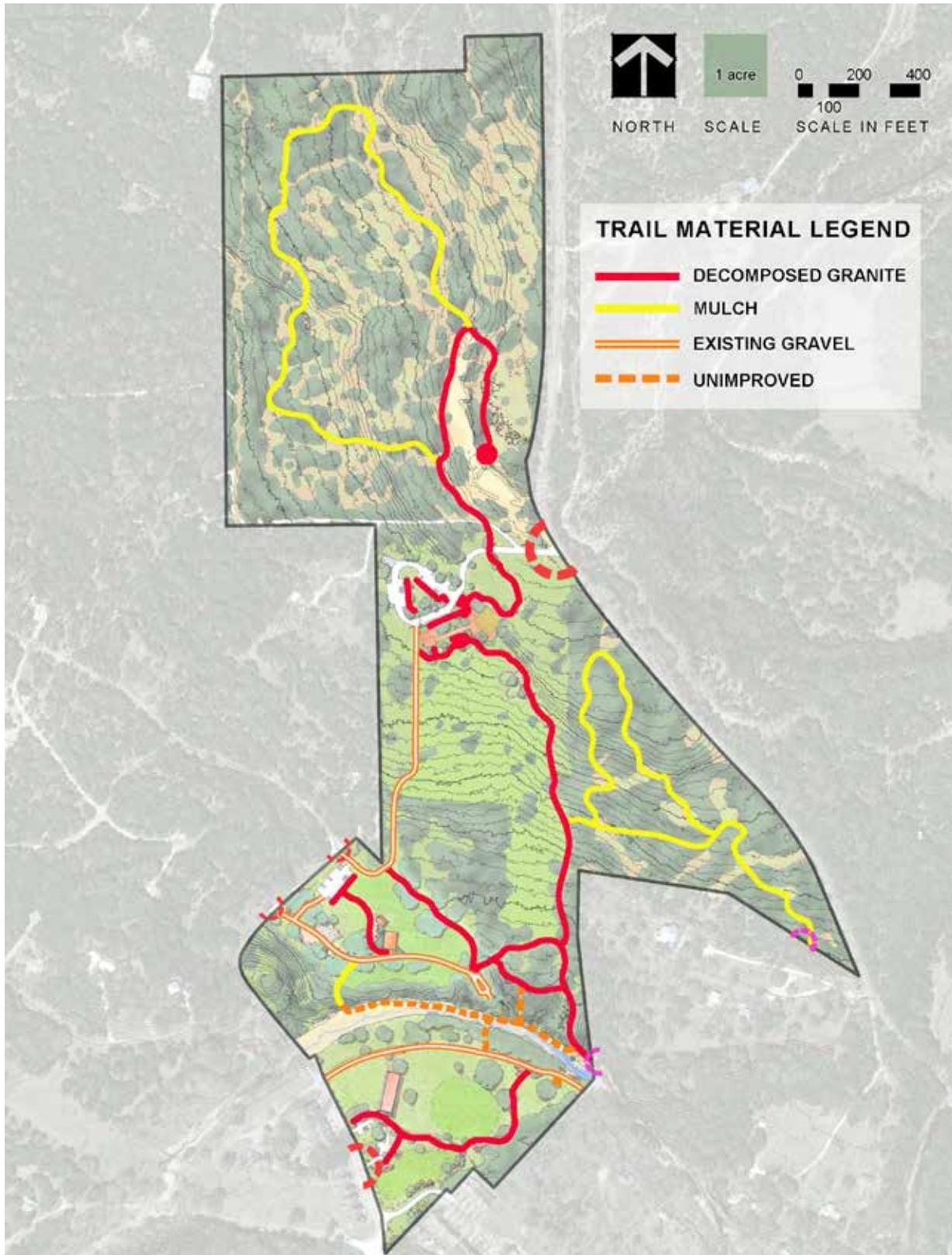
Overview

This master plan is a vision of how the entire site could be used in the future. This will be a phased project and areas will be developed as funds become available. County staff and the stakeholders identified fencing, trails, and signage as a priority for visitor's safety and to show progress in the site's development.

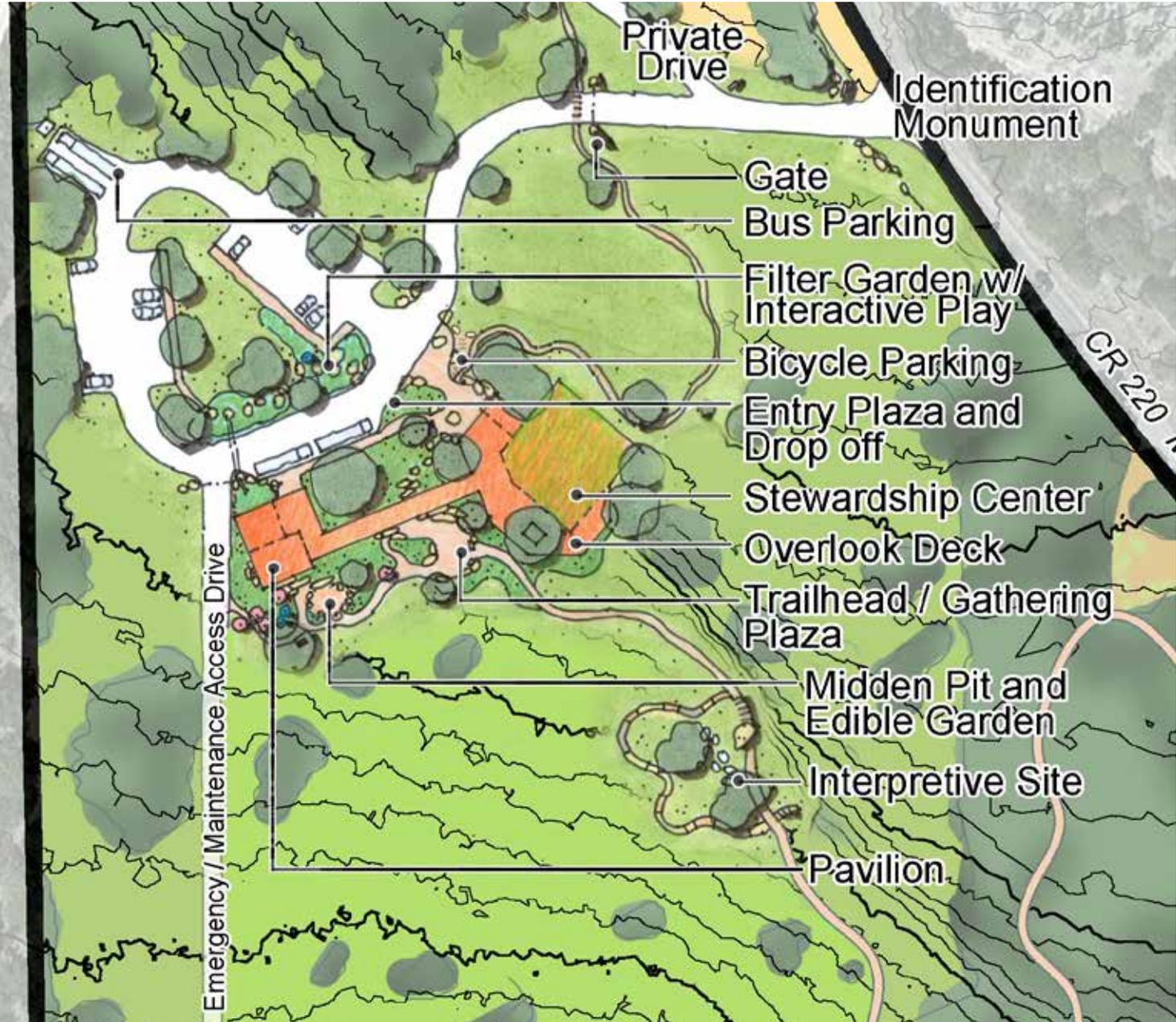
The Stewardship Center is a major component of the environmental education on site. Interpretive sites, trailheads, and outdoor classrooms provide educational opportunities throughout the site. Flood plain and conservation easements limit building construction south of Camp Jacob. Therefore, the southern portion of the project is primarily trails, plant preservation and restoration, play areas with an emphasis on environmental education, picnic areas and open space. Trails existing on site will be maintained and educational docent lead tours will continue to utilize them. In addition to educating visitors, volunteers will continue to maintain and restore rangeland and forest habitats.



Trail Master Plan

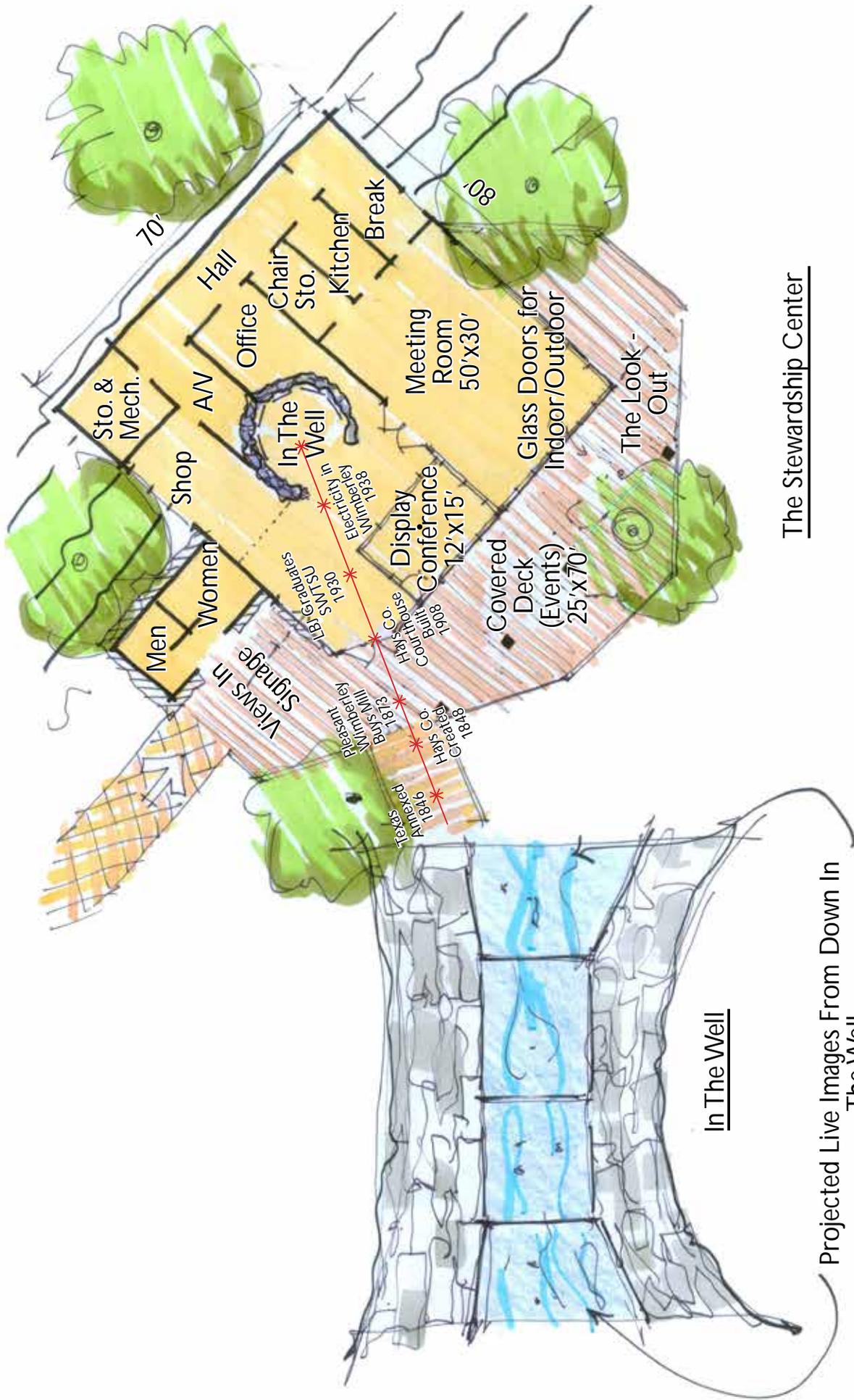


Stewardship Center





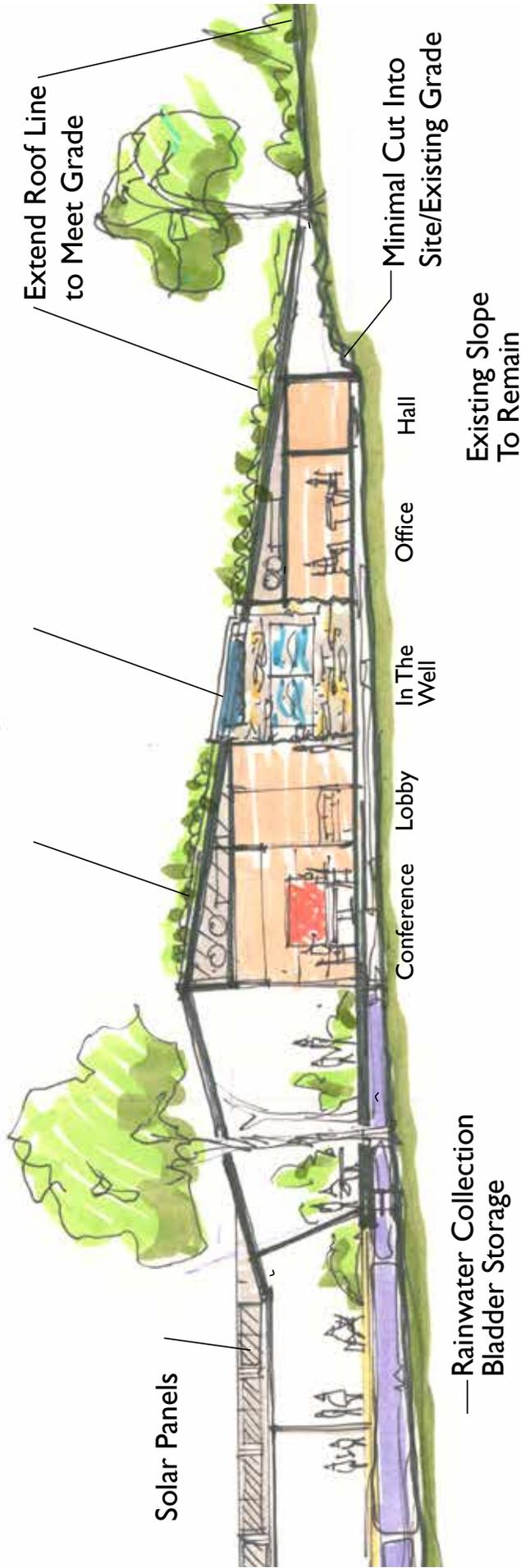
Paleo Classroom Pavilion



The Stewardship Center

In The Well

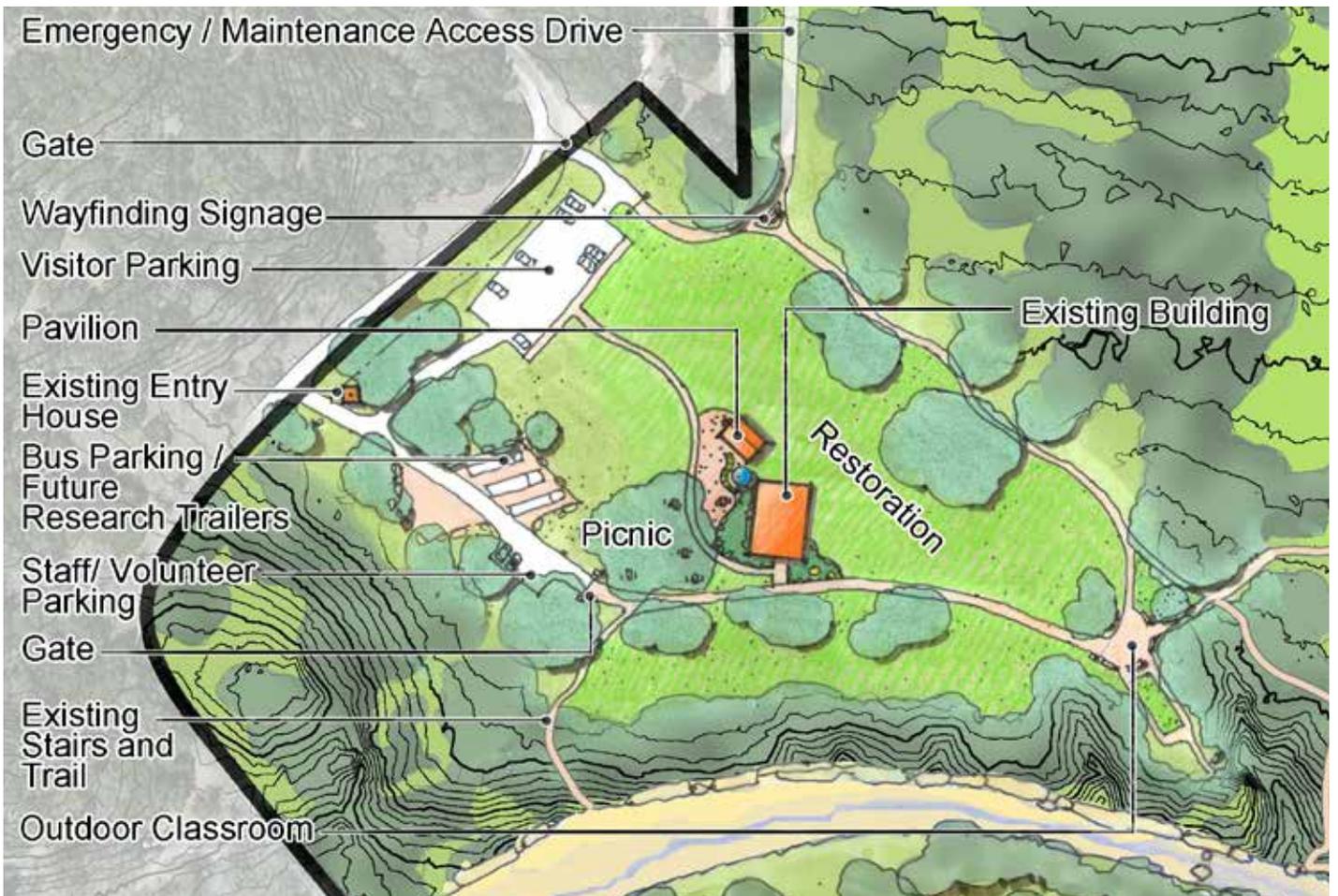
Projected Live Images From Down In The Well



Building Section - Looking West



Camp Jacob

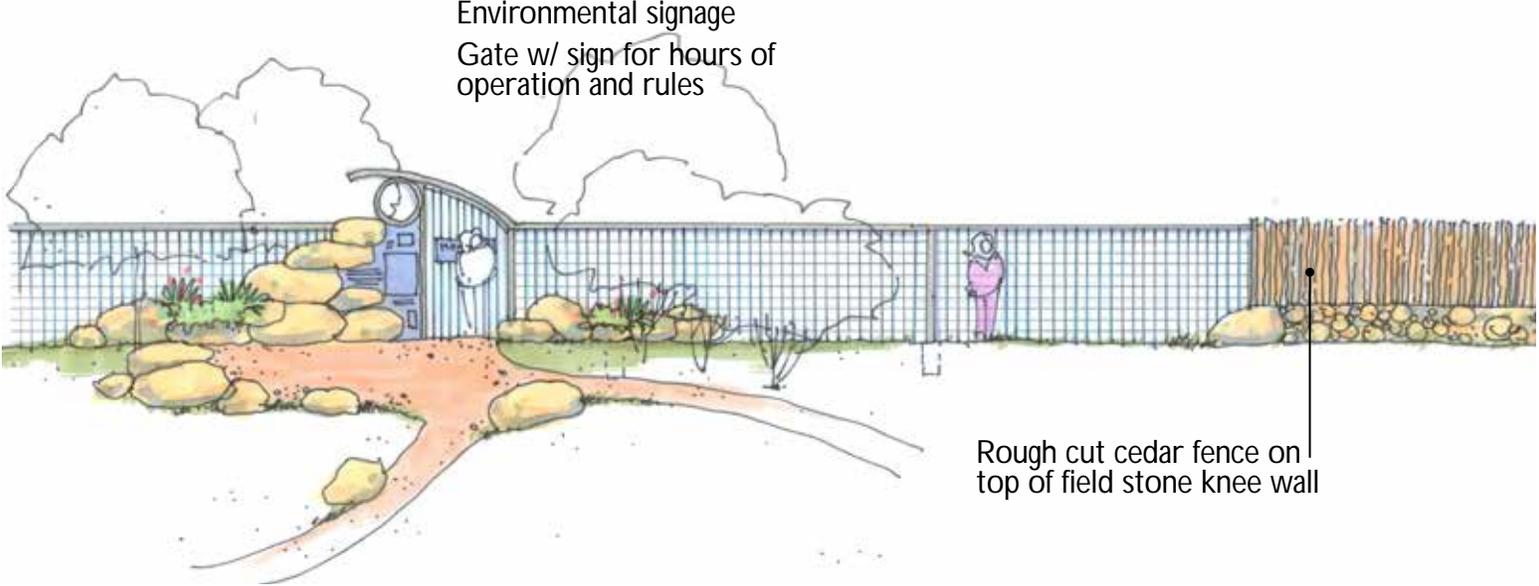


Day Use



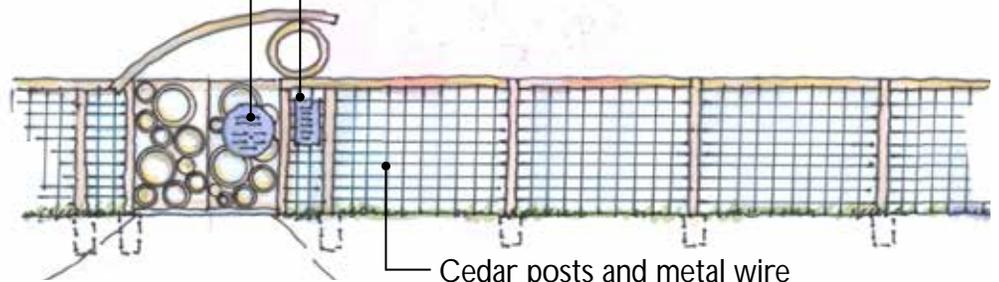
Entry and Fence

Environmental signage
Gate w/ sign for hours of operation and rules



Rough cut cedar fence on top of field stone knee wall

Cedar entry gate w/ hours on gate
Park rules on fence



Cedar posts and metal wire fence to match existing

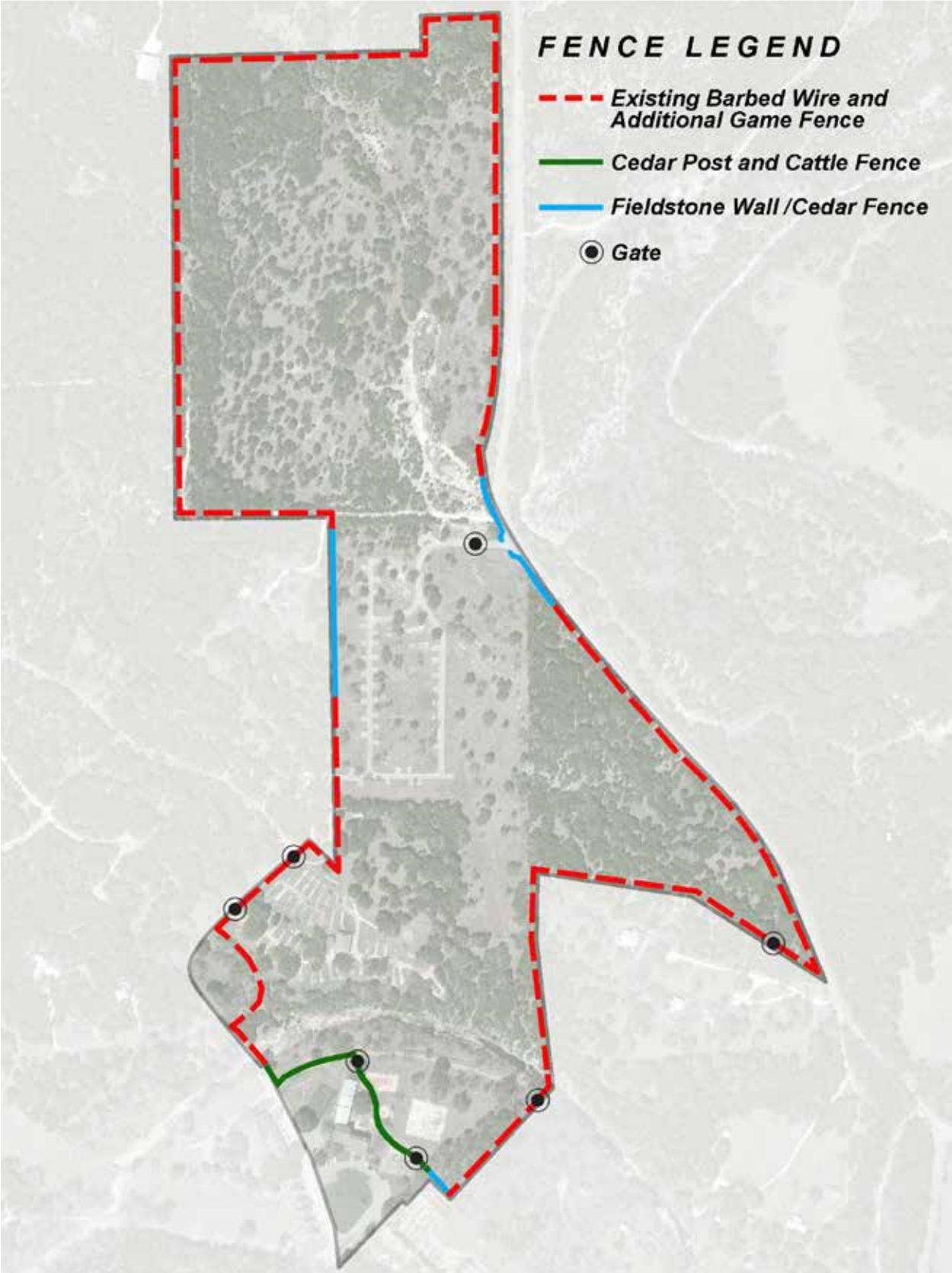


Rough cut cedar fence



Decorative entry gate

Fence Locations



Interpretive Sites



Materials and Resources



Protect and Restore Habitat

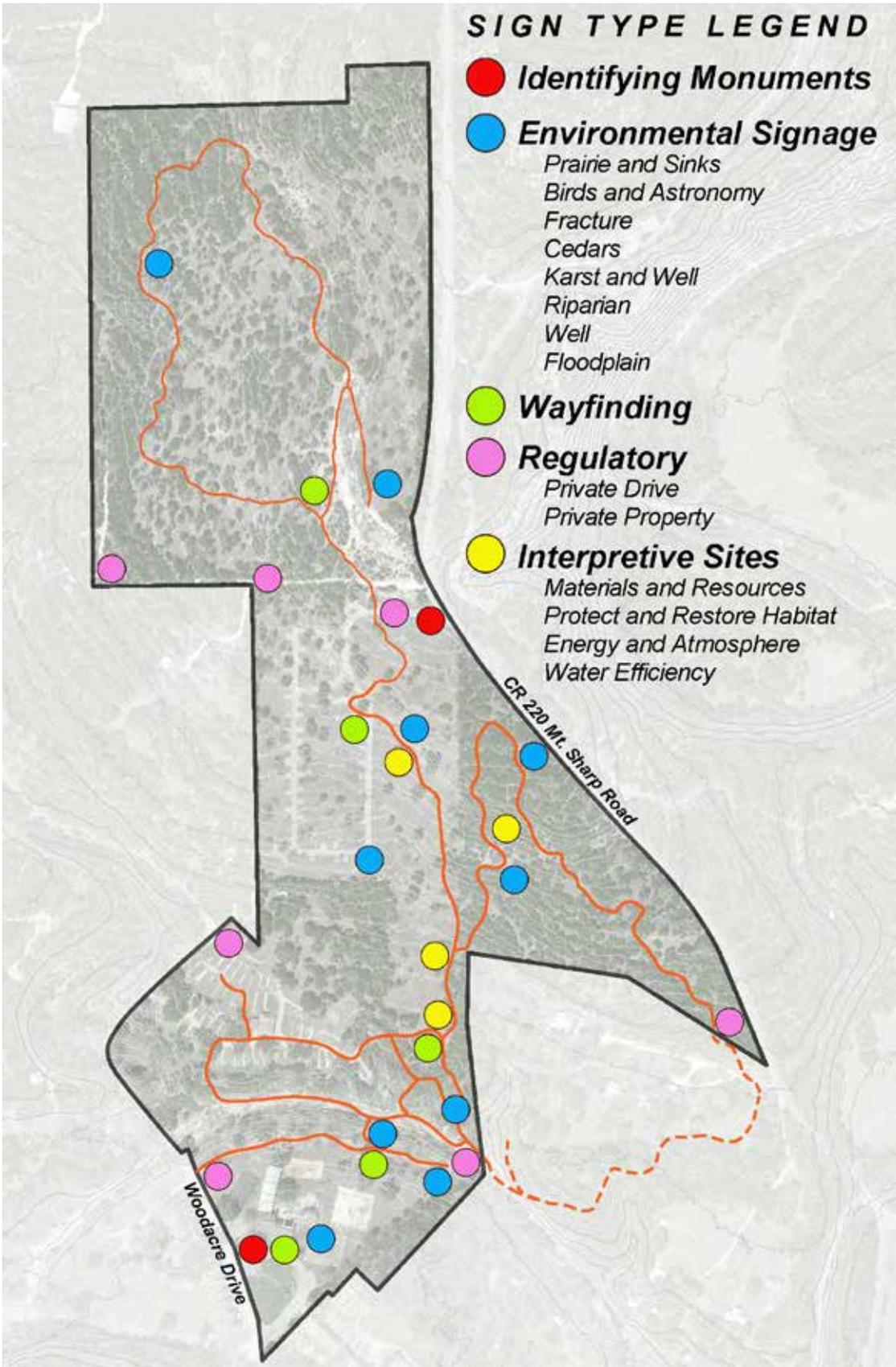


Energy and Atmosphere



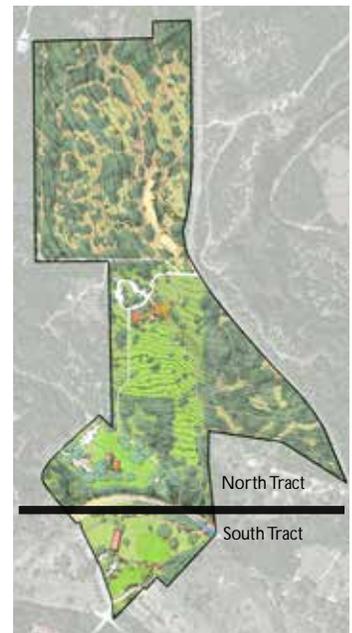
Water Efficiency

Sign Locations



5

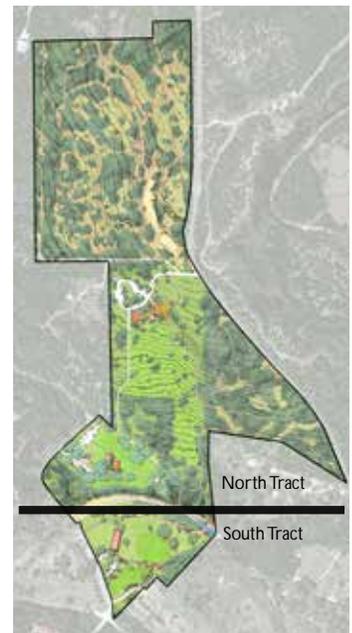
COST ESTIMATES



NORTH TRACT (Does not include Camp Jacob)

Category	Cat. Total
Parking Lot & Driveways	90,000.00
Structures	1,900,000.00
Hardscape	185,000.00
Playscape	75,000.00
Furnishings	25,000.00
Signage	15,000.00
Lighting (dark sky compliant - no parking lot lighting)	14,000.00
Planting and Irrigation	150,000.00
<hr/>	
Sub Total:	\$ 2,454,000.00
10% Contingency	\$ 245,400.00
Sub Total:	\$ 2,699,400.00
18% Sitework and Utilities	\$ 485,892.00
1% Public Art	\$ 26,994.00
6% Mobilization, Bonding, and Insurance:	\$ 161,964.00
TOTAL:	\$ 3,374,250.00

NOTE:
This estimate does not include removal of existing structure(s), permitting, or design fees.

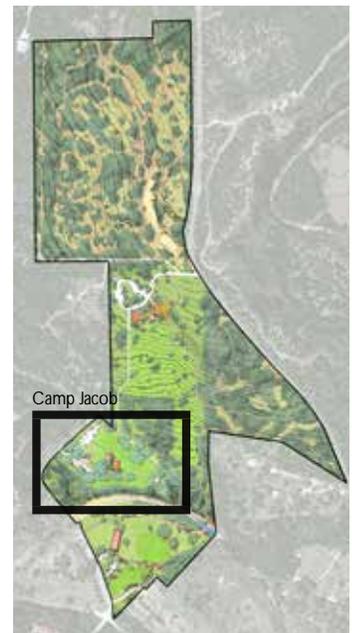


SOUTH TRACT

Category	Cat. Total
Parking Lot & Driveways	14,000.00
Hardscape	64,000.00
Playscape	75,000.00
Furnishings	17,000.00
Signage	9,000.00
Lighting (dark sky compliant)	11,000.00
Restoration, Planting and Irrigation	19,000.00
<hr/>	
Sub Total:	\$ 209,000.00
10% Contingency	\$ 20,900.00
Sub Total:	\$ 229,900.00
12% Sitework	\$ 27,588.00
1% Public Art	\$ 2,299.00
6% Mobilization, Bonding, and Insurance:	\$ 13,794.00
TOTAL:	\$ 273,581.00

NOTE:

This estimate does not include removal of existing structure(s), permitting, or design fees.



CAMP JACOB

Category	Cat. Total
Parking Lot & Driveways	10,000.00
Hardscape	60,000.00
Furnishings	3,100.00
Signage	2,300.00
Restoration, Planting and Irrigation	45,000.00
<hr/>	
Sub Total:	\$ 120,400.00
10% Contingency	\$ 12,040.00
Sub Total:	\$ 132,440.00
12% Sitework	\$ 15,892.80
6% Mobilization, Bonding, and Insurance:	\$ 7,946.40
TOTAL:	\$ 156,279.20

NOTE:
This estimate does not include removal of existing structure(s), permitting, or design fees.



J A C O B ' S W E L L N A T U R A L A R E A
M A S T E R P L A N