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Design Recommendations Guide for Built Elements Within the Santa Clara River Reserve

Jordan W. Smith
Utah State University

DESIGN RECOMMENDATIONS GUIDE FOR BUILT ELEMENTS WITHIN THE SANTA CLARA RIVER RESEVE

by

Jordan W. Smith

Thesis submitted in partial fulfillment of the requirements for the degree

of

DEPARTMENT HONORS

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Approved:

Thesis/Project Advisor	**Department Honors Advisor**
Michael Timmons	Michael Timmons

Director of Honors Program

CHRISTIE FOX

UTAH STATE UNIVERSITY
Logan, UT

Spring 2006

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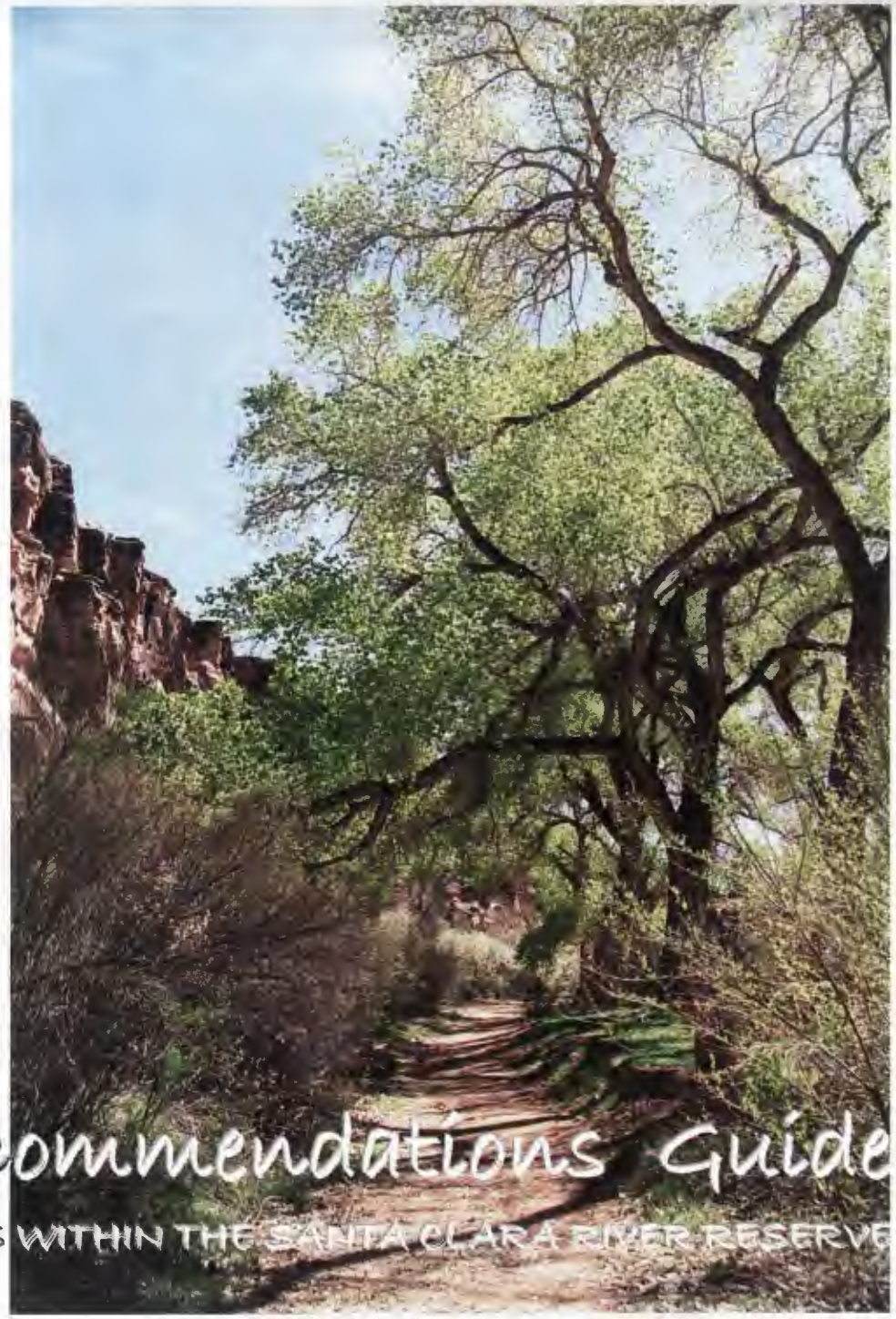

Design Recommendations Guide

FOR BUILT ELEMENTS WITHIN THE SANTA CLARA RIVER RESERVE

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The Santa Clara River Reserve

MISSION...

To preserve the cultural heritage, open space, recreational opportunities, and resource values of the Santa Clara River Reserve for our communities through a Recreation and Open Space management Plan that provides for resource protection, interpretative education, traditional use, and planned recreation.

GOAL...

To foster a sense of place that balances the need for resource protection with the need for recreational opportunities that offer a range of experience outcomes. The Plan will identify educational opportunities that inform the public about sensitive resources and cultural heritage, and be responsive to changing community needs through adaptive management strategies.

Table of Contents

Chapter 1

Introduction

"The wind whips through the canyons of the American Southwest, and there is no one to hear it but us – a reminder of the 40,000 generations of thinking men and women who preceded us, about whom we know almost nothing, upon whom our civilization is based." -- Dr. Carl Sagan

INTRODUCTION

The Design Recommendations Guide for Built Elements within the Santa Clara River Reserve is intended to serve as an addendum to the *Santa Clara River Reserve: Recreation and Open Space Management Plan* completed in July 2005.

This guide aims to provide the SCRR board members with a more comprehensive and defined catalog of design opportunities that can be implemented to establish the image, aesthetics, and overall quality of SCRR facilities consistent with the Reserve's goal of "fostering a sense of place".

The recommendations found in this guide include administrative and recreational structures, landscape structures, site furnishings, structures on roads and trails, and signs installed or operated by the SCRR.

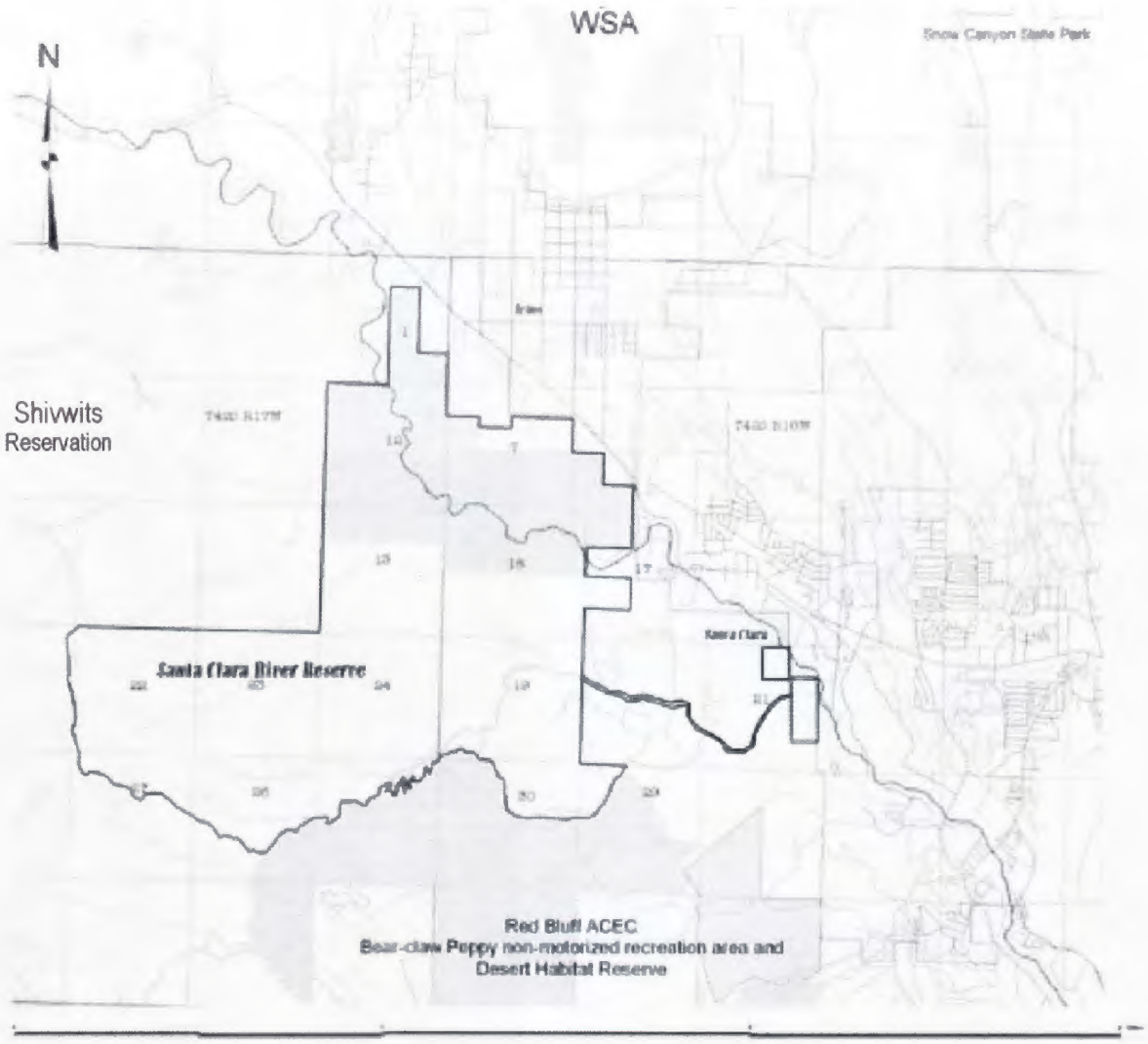
INFLUENCES ON THE CHARACTER OF BUILT ELEMENTS

CONTEXT

The desert setting of the Santa Clara River Reserve is both a spectacular and fragile environment. It is worthy of preservation and requires careful stewardship. It is desired, within this magnificent setting, that the built elements can both compliment and be in harmony with the natural environment.

The design of sites and facilities within the SCRR should integrate the principles of sustainability and energy efficiency with the more basic functions and aesthetics. This integration will result in built elements that truly fit their environments.

Santa Clara River Reserve Boundary Map



CHARACTER OF THE SCRR

The natural environment of the SCRR is dominantly semi-arid with a relative lack of timber and an abundance of stone. Drought and fire are dominant influences. With only 4 percent of the southwest that is riparian, places like the SCRR are highly valued and ecologically indispensable.

The landscape of the Reserve is characterized by vast skies, long vistas and of course, the strong line of the desert horizon. The land forms are hills, valleys, plains, and the unmistakable canyon formed by the Santa Clara River which is framed on either side by dramatic sandstone formations.

It is these characteristics that have helped shape a distinctive regional design that is well adapted to climate, geography, and the scarcity of water. This design heritage should be embraced by the SCRR.

Chapter 2

Architectural Design Recommendations

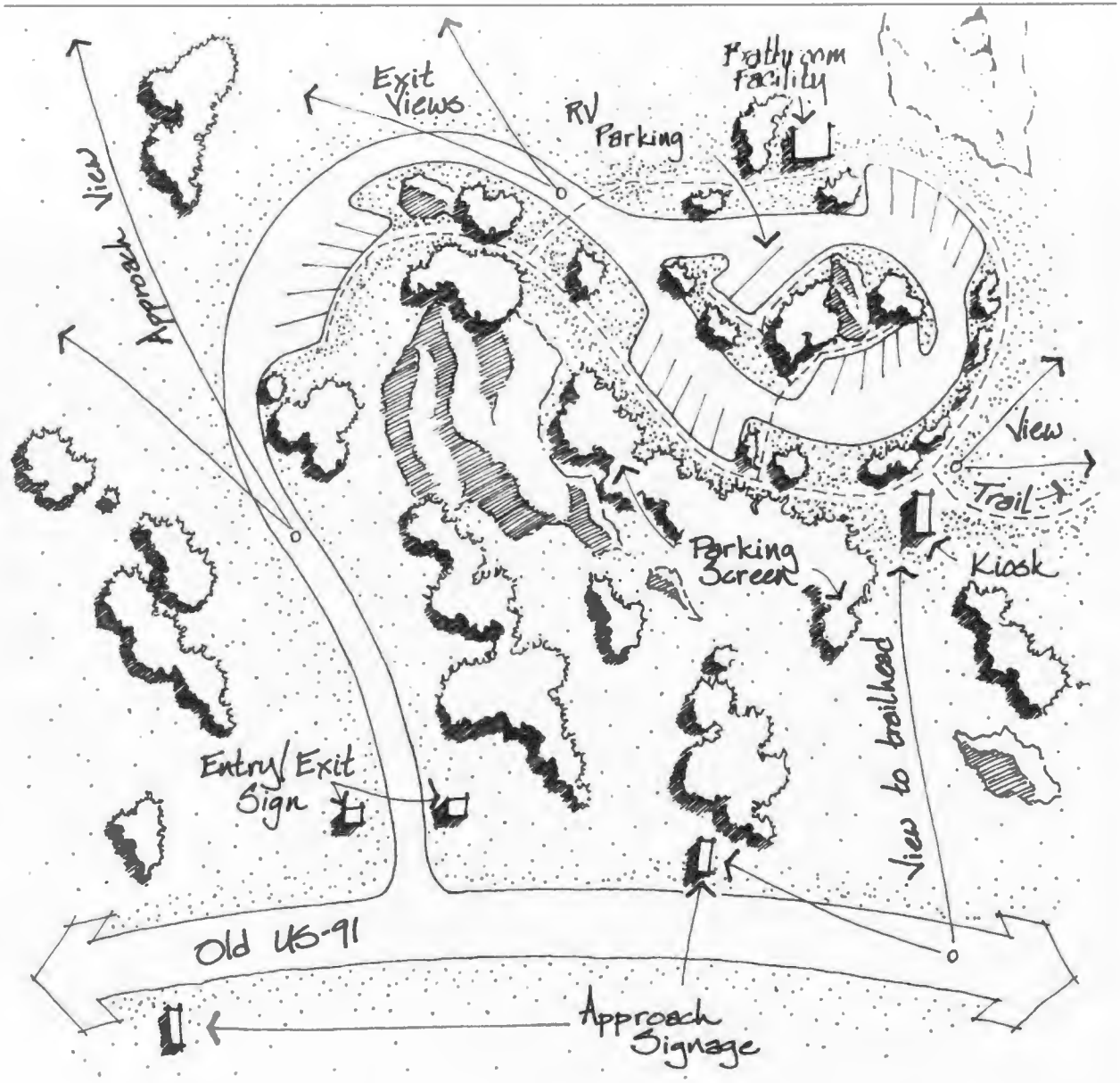
"...the interest of the visitor....should concentrate on features of natural, in preference to artificial beauty.... Architectural features should be confessedly subservient." -- Fredrick Law Olmstead and Calvert Vaux

SITE PLANNING

The experience of the SCRR begins with a well-designed entrance and proceeds to campgrounds, interpretive stops, and other features. The visitor needs a clear idea of where they are heading, where to park, and how to reach their destination.

ENTRANCES

Entrances will impart the all important first impression upon the visitor. Before they reach the entrance, they should receive clear direction from well-placed signs on the main highway. The entry road should include appropriate traffic controls, such as a turn lane, so visitors can enter and exit with safety and convenience.



An ideal entry experience

PARKING

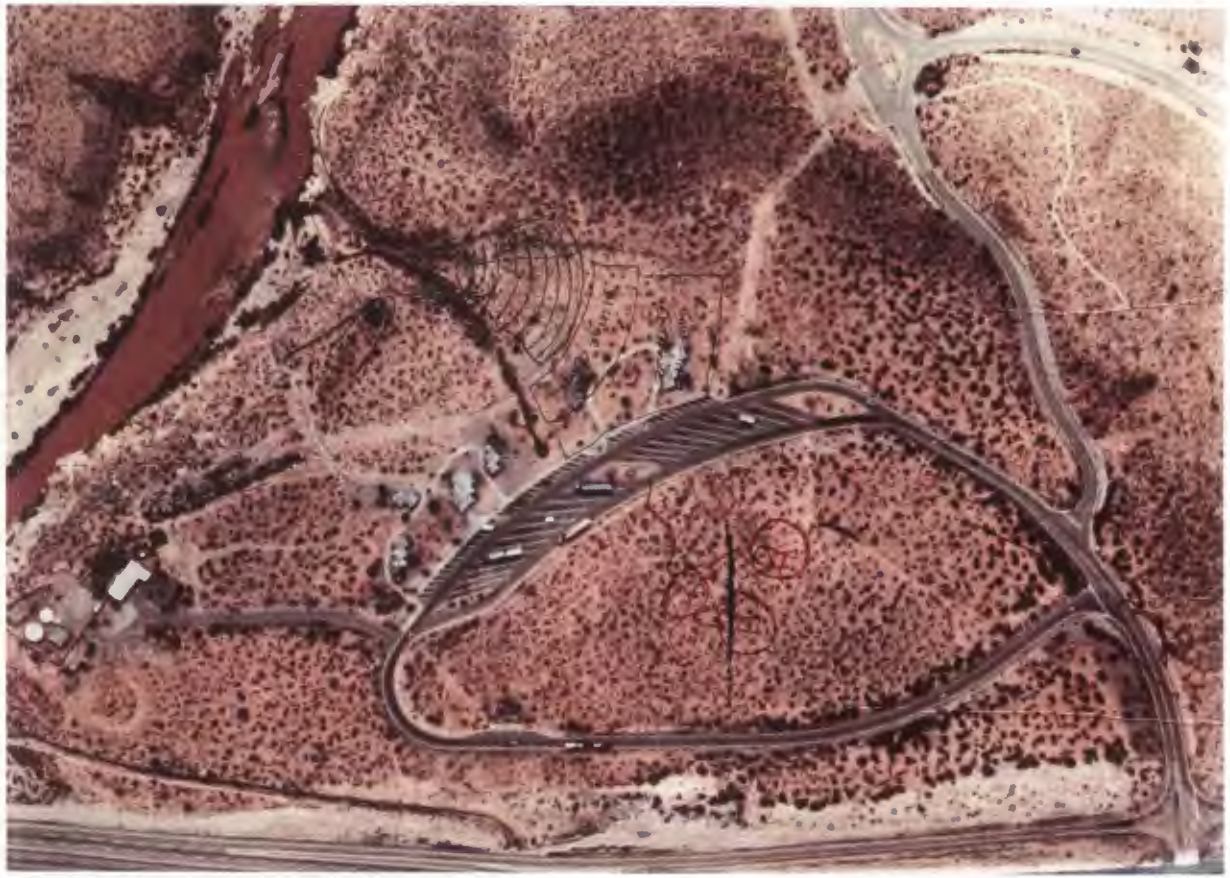
Given the dominantly horizontal desert landscape of the SCRR, special consideration should be given in the placement of parking areas in order to screen parked vehicles and retain existing sight lines.

Parking should accommodate all potential vehicle types, from bicycles to large recreational vehicles.

Where possible, a one-way traffic flow should be utilized as well as the use of a single entry/exit.

UNIVERSAL DESIGN

Implementation of universal design principles is mandatory and ensures access for all people, including persons with disabilities.



A large example of desert parking that minimizes its impact on the landscape

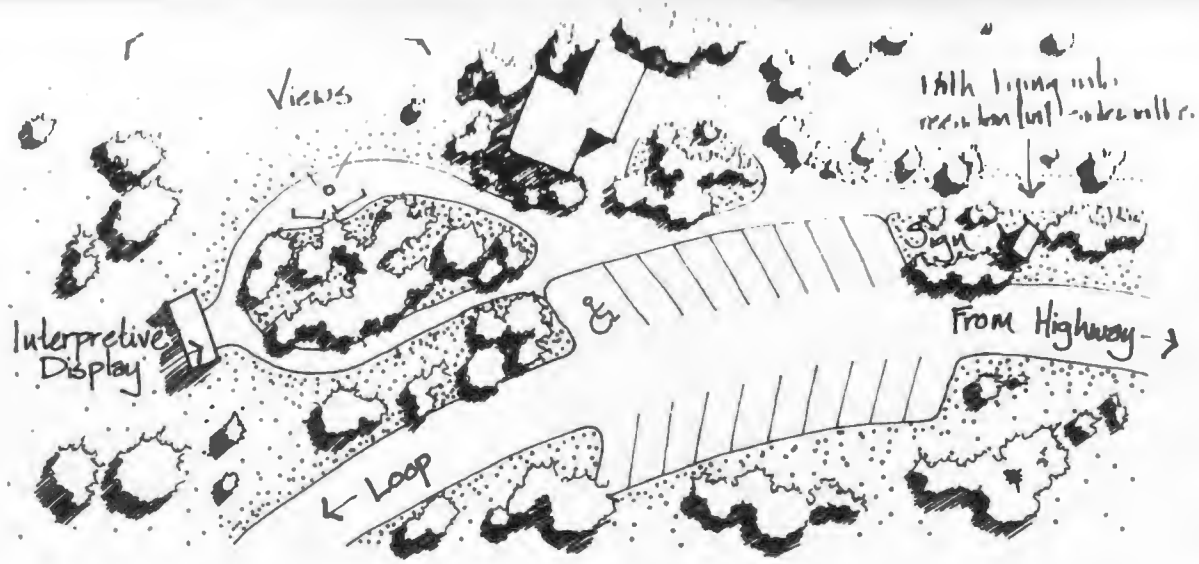
PEDESTRIAN CIRCULATION

Visitors should be welcomed with convenient, safe, and attractive walkways and circulation areas.

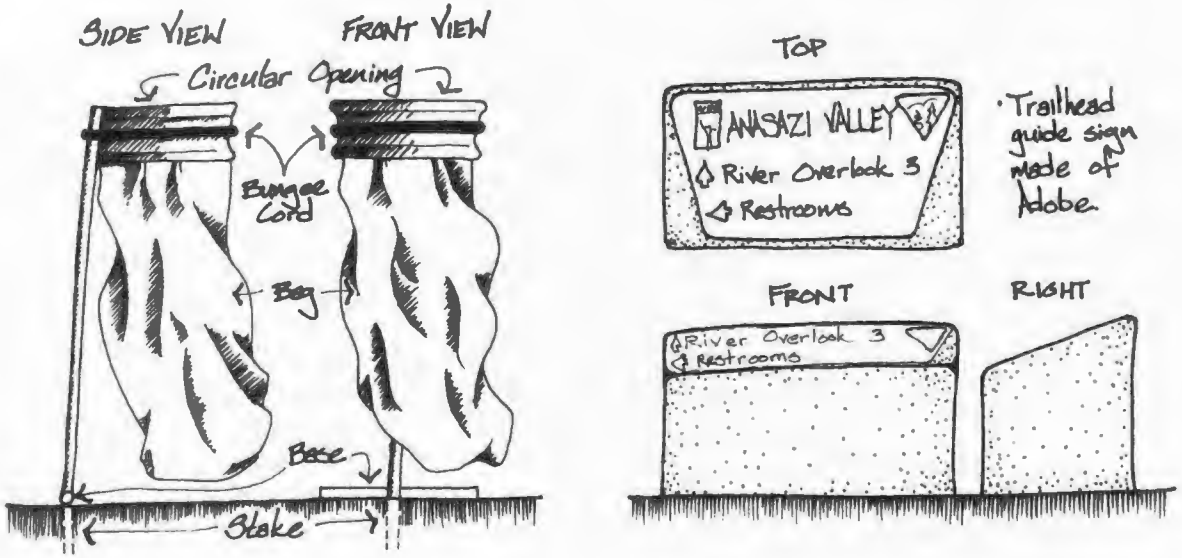
The most direct route from the parking area to the destination should be accommodated to prevent visitors from creating new paths.

Trash receptacles should be provided at the trailhead.

Simple, understandable directional signs should always be provided.



An efficient pedestrian circulation system



Trail head necessities

SCRR IDENTITY

SIGNS

Like any other built element, a sign should complement the natural and cultural context. The signs themselves must follow the Bureau of Land Management Sign Guidebook. The BLM Guidebook does not provide regulations for the supporting base of the sign, but the base should have the appropriate massing, scale, material, and color to fit within the surrounding context.

For example, a base of large native sand-stone might be used to support an entry sign, and smaller scale cut sand-stone would be more appropriate for feature, guide, and informational/interpretive signing.

The SCRR logo has the potential to become a widely recognized symbol of the area and its values. To help establish this identity, the logo should be placed as a symbol and icon in key locations.

Incorporating native stone

SANTA CLARA RIVER RESERVE

SCRR logo

Approach sign with base of stacked sandstone

KIOSKS AND INFORMATIONAL/INTERPRETIVE SIGNS

Kiosks and informational boards should be carefully designed to portray the pertinent information while being graphically appealing.

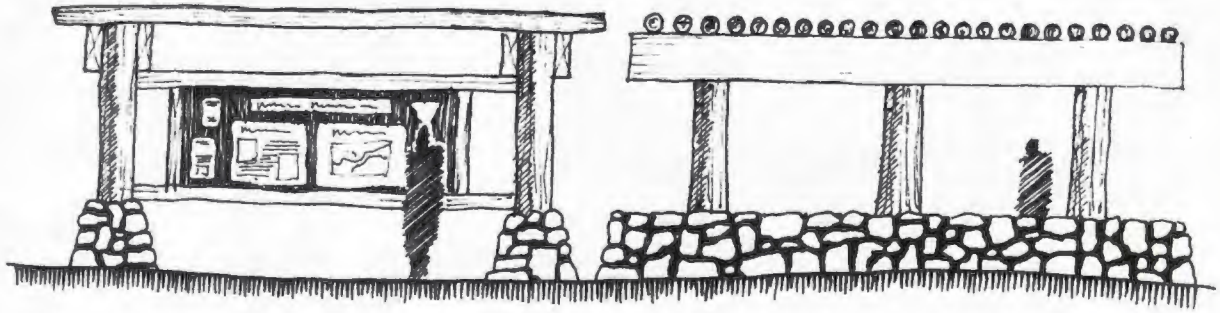
Kiosks, whenever possible, should provide shelter from the weather. They should always include the following:

- A map to provide orientation.
- The location of prominent destinations and recreational areas.
- Directions to facilities available within the area.
- Emergency phone numbers.
- Permit requirements.
- The address and phone number of the BLM's St. George field office.

*See pg. 17 for recommendations for the bases of signs.

A highly interesting and engaging kiosk panel

· Post and lintel construction with a "humping" lintel to reduce the profile of the structure.
· The trellis and stone further reinforce the designs heritage.



A kiosk that reflects natural and cultural history

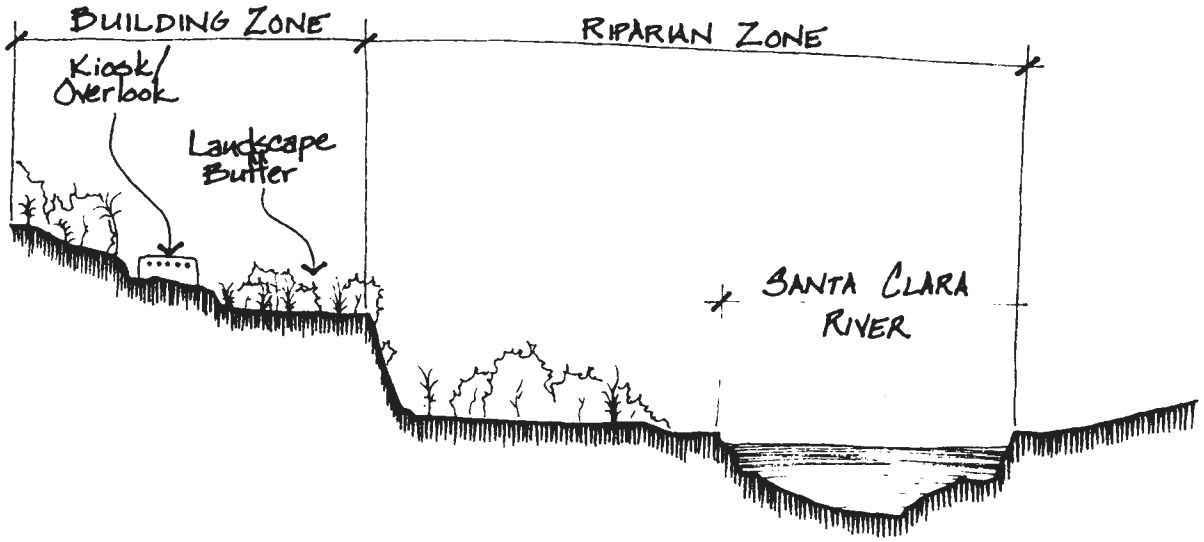
SUSTAINABLE PRACTICES

"Sustainability is not a new building style. Instead it represents a revolution in how we think about, design, construct, and operate buildings." -- A Primer on *Sustainable Building* published by Rocky Mountain Institute Green Development Services.

LANDSCAPE PLANNING AND VEGETATION

To minimize site disturbance, surface grading, and vegetation loss, kiosks, parking areas or other built elements should be sited on topographically flat or previously disturbed areas whenever possible.

Sensitive riparian areas and massings of native vegetation should be preserved and disturbance should be avoided.



Both the River and the structures are protected with a suitable landscape buffer

Disturbance of fragile riparian areas must be avoided

Given the areas high risk for wildfire in the hot summer months, vegetation that poses a lower fire risk should be placed nearer to built elements.

To enhance the possibility for new wildlife habitat and reduce maintenance needs, native plantings should be prominently used in revegetation areas. See App. A.

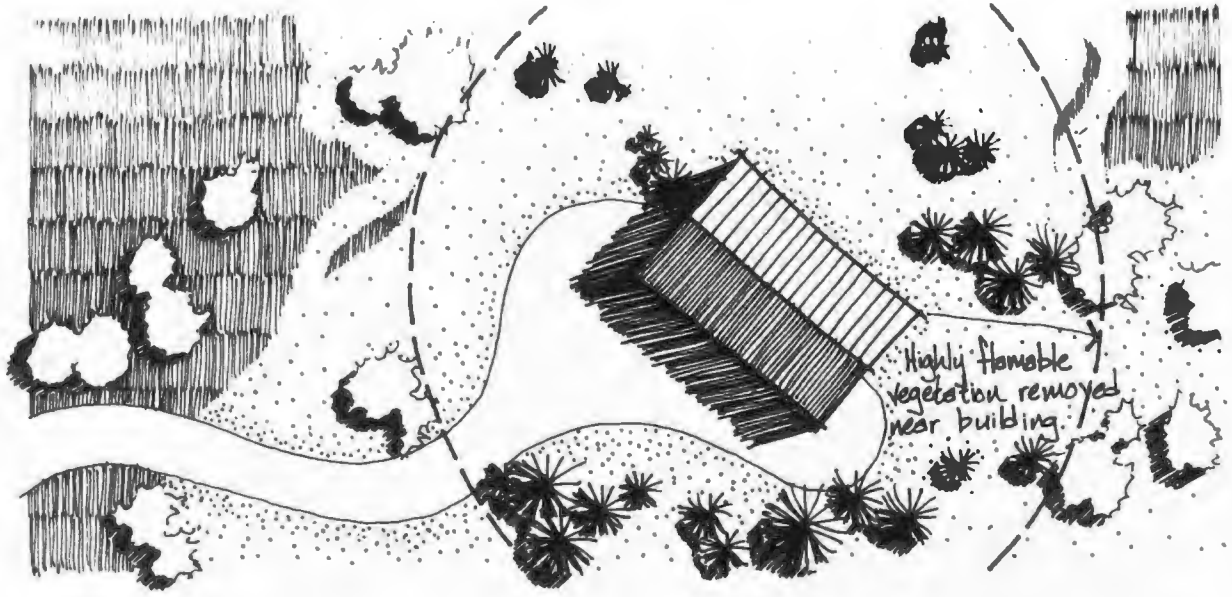
WATER CONSERVATION

When possible, disturbed areas should be graded to harvest runoff water to vegetation that needs extra water during establishment.

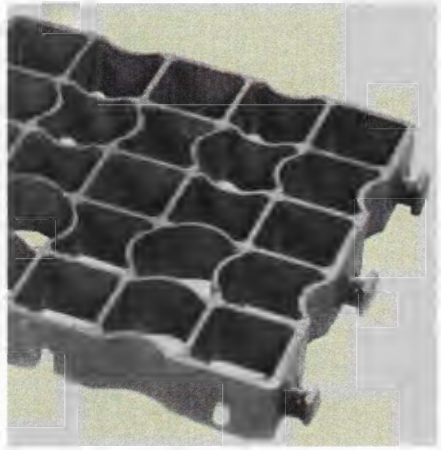
The possibility of porus paving and geo-textile materials should be explored to minimize erosion while maintaining accessibility.

RECYCLING

Materials that contain a high recycled content should have preference.



Clearing of highly flammable vegetation



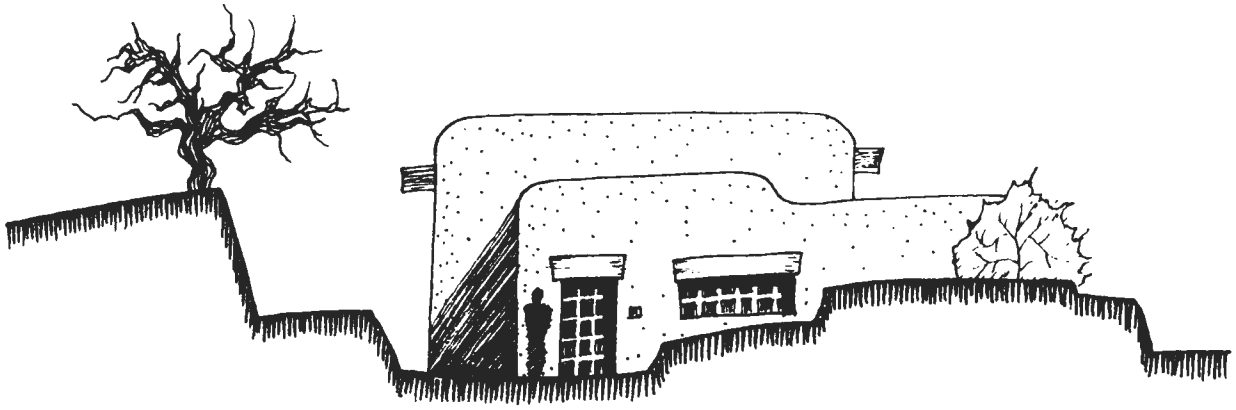
New building materials like Renew Wood's eco-shake looks like a classic cedar shake, but it is made of 100% recycled wood and plastic. Ecogrid is also 100% recycled and meets accessibility standards while minimizing erosion.

BUILT ELEMENTS

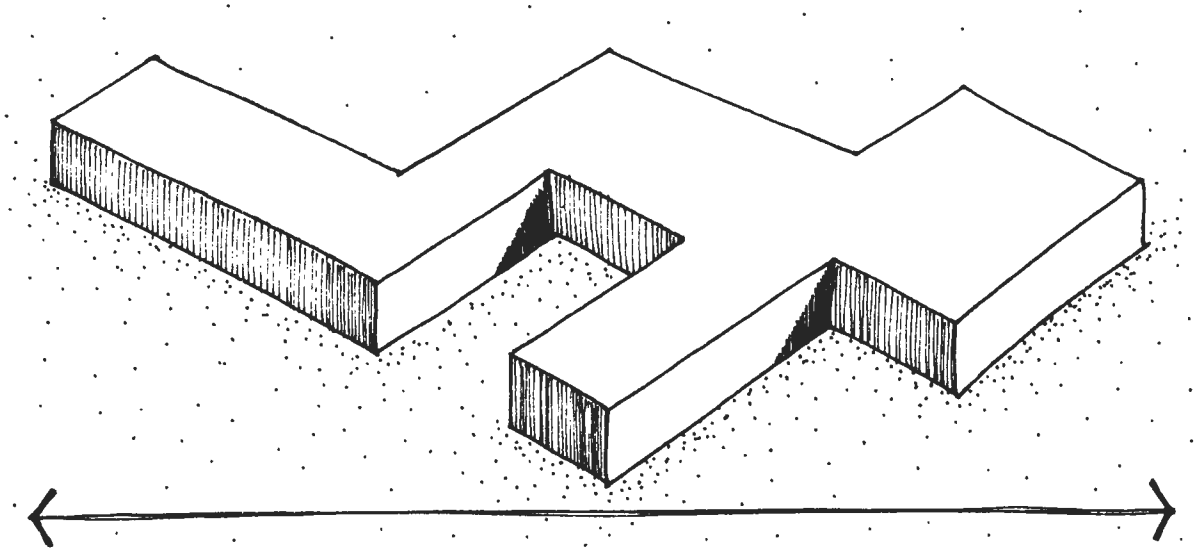
BUILDING SCALE AND MASSING

The massing and scale of structures should remain in harmony with the immediate natural surroundings. Typical southwest design is usually low, horizontal, blocky and rectilinear. These forms fit with the texture of the landscape and provide shade.

To relate the size of structures and other built elements to the human scale while reflecting the natural environment, the scale of built elements can and should be manipulated.



Doors and windows can be used to create human scale



Buildings should be kept low and more horizontal and rectangular

BATHROOM FACILITIES

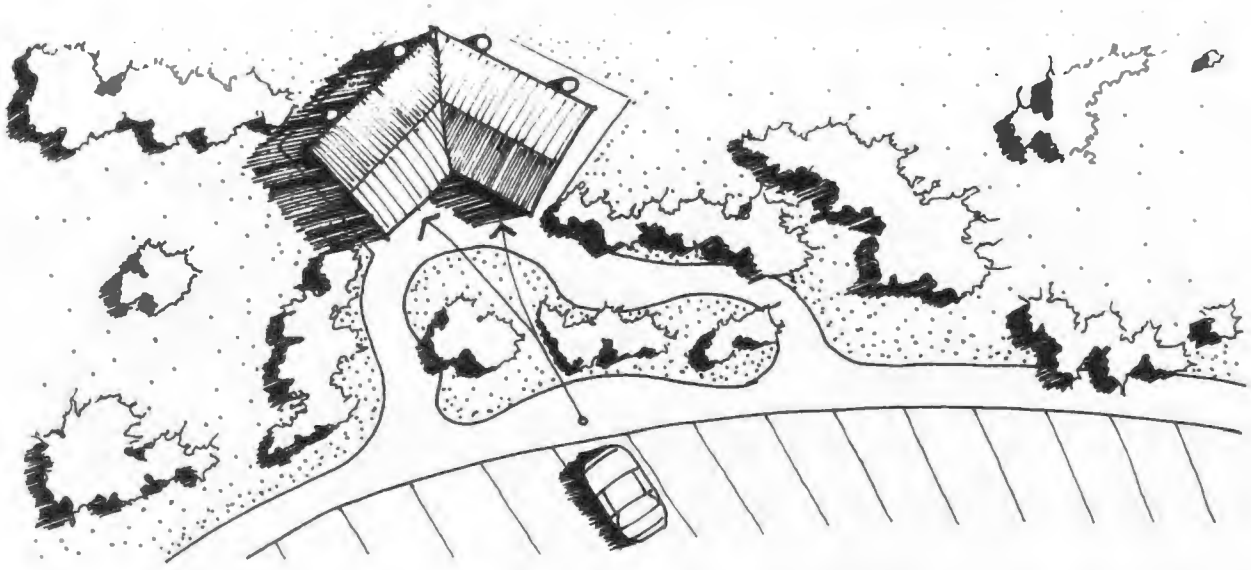
Restrooms are a primary destination point for visitors. They will leave a strong impression of the SCRR's image. The bathroom facilities, as like other built elements, should be suitable to their context.

Natural buffers like vegetation, rock outcroppings, and boulders should be used to screen views from outside the parking area while still allowing easy identification by visitors.

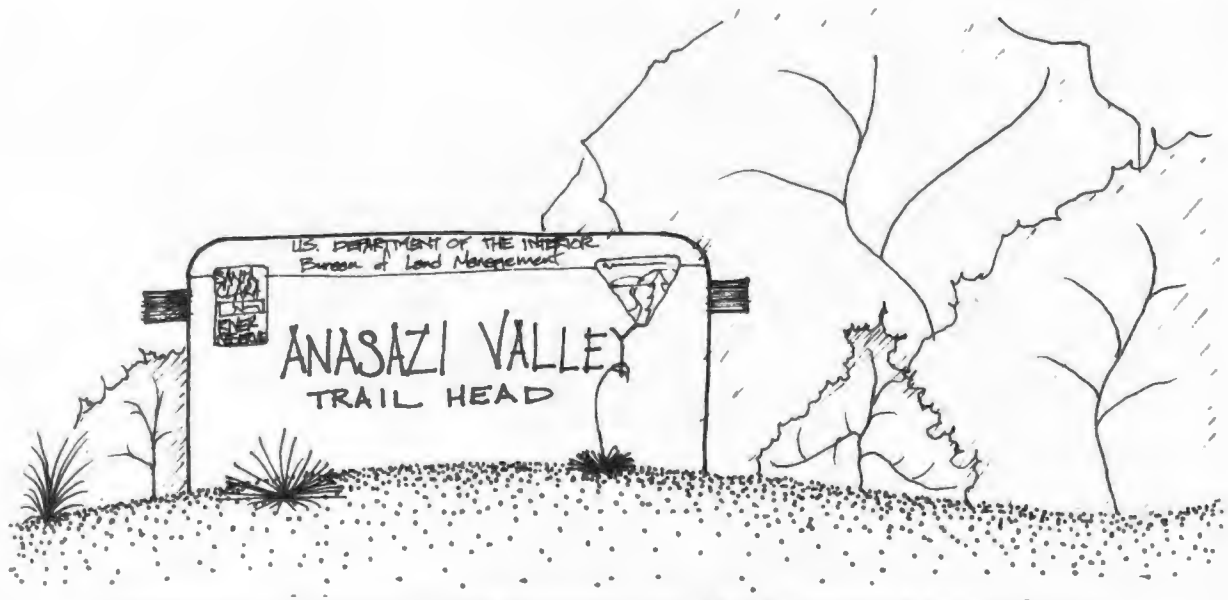
Placement should be convenient to parking areas and trailheads.

BASE, WALLS AND SHADE STRUCTURES

A solid, significantly massed base of preferably sandstone, adobe, or stacked flagstone should be used to anchor signs and other built elements, particularly posts, to the ground.



Proper restroom siting allows for a filtered view from the parking lot to the structure



Another interpretation of the approach sign, this time with a stucco finish

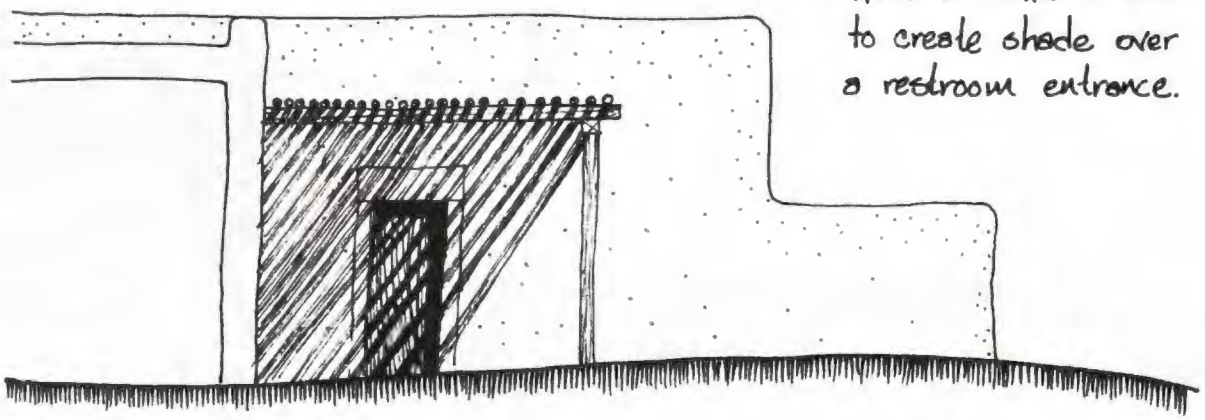
The bottom of all walls should be wider at the base to enhance stability and create a more grounded appearance.

Wooden post and lintel construction is a cultural element that is particularly effective when combined with a matching overhead trellis.

ROOFS

Flat roofs have a strong cultural tradition in the area while pitched roofs reduce maintenance by shedding water more rapidly. Both could be used effectively.

A roof pitch of 1:12 should be adequate to disperse water while maintaining an appearance that is consistent with the history of the area.



• Here a trellis is used to create shade over a restroom entrance.

The blending of function with a historical architectural style

Pueblo style

Traditional Spanish style

The use of heavy asphalt shingles, concrete tile or fiber-cement tile creates a nice compliment to the landscape and is more desirable than standing-seam or corrugated metal roofs.

Colors chosen for roofing should be slightly darker than colors on the standard color palate because under intense sun the roofing will appear lighter, it will also fade slightly over time.

MATERIALS

For pathways, a decomposed granite or colored concrete is preferable to match surrounding earth tones.

Plexi-glass covers on kiosks should be finished with a low-glare, non-reflective surfacing.

To prevent decomposition, exposed wood should be avoided.

Heavy asphalt shingles

Concrete tile

Fiber-cement tiles

Decomposed granite

Colored concrete pavers

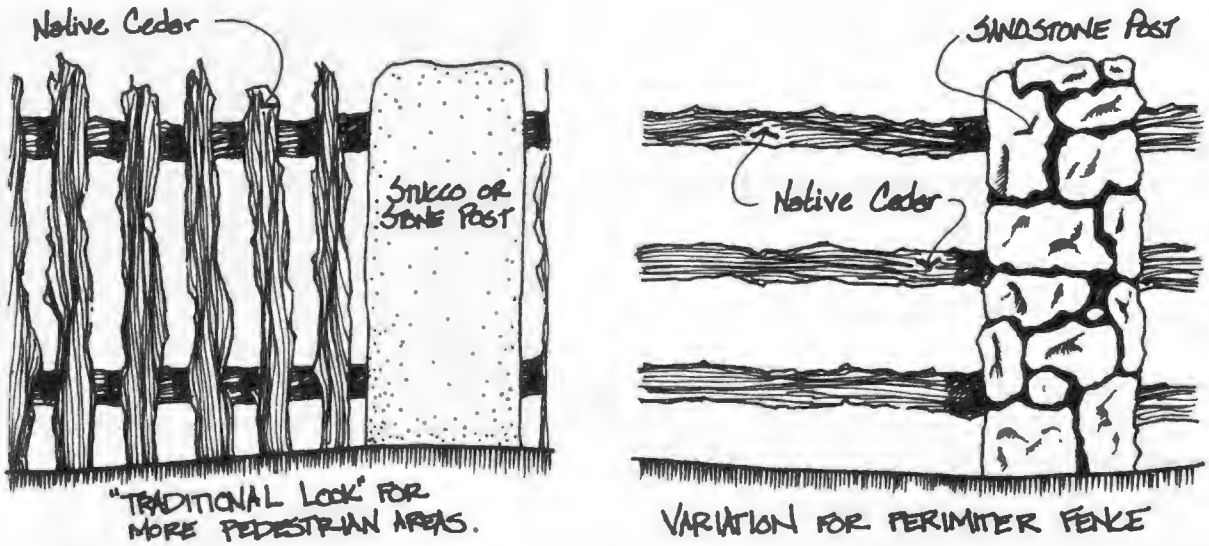
For fencing and shade structures, the use of small diameter, collected wood presents a very traditional look. They are sometimes called coyote, Mormon, or grapestake fences.

COLOR

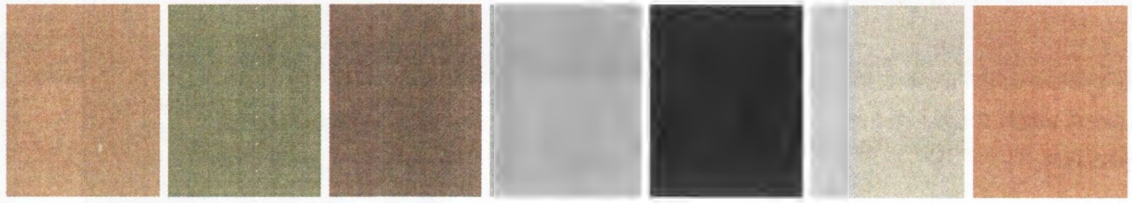
Local stone should always be a primary material as should other materials with integral colors (preference should be given to materials with natural coloration as opposed to materials that must be painted or stained).

A standardized color scheme should be adopted so consistency can be established throughout the reserve.

These colors compliment local vegetation, soils, and rock outcrops.



A modified design style for different areas offers great versatility



Colors reflect the surrounding native landscape and design heritage

Appendix A: Plants Observed in the SCRR

Common Name	Scientific Name
Trees	
Desert Willow	*Chilopsis linearis*
Russian Olive	*Eleagnus angustifolia*
Velvet Ash	*Fraxinus velutina*
Utah Juniper	*Juniperus utahensis*
Pinus monophylla	*Singleleaf Pinyon Pine*
Fremont Cottonwood	*Populus fremontii*
Honey Mesquite	*Prosopis glandulosa*
Screw Bean Mesquite	*Prosopis pubescens*
Sandbar Willow	*Salix exigua*
Goodding Willow	*Salix gooddingii*
Salt Cedar	*Tamarix ramosissima*
Shrubs	
White Bursage	*Ambrosia dumosa*
Wooly-Fruited Bursage	*Ambrosia eriocentra*
Sand Sagebrush	*Artemesia filifolia*
Four-Wing Saltbush	*Atriplex canescens*
Shad Scale Saltbush	*Atriplex confertifolia*
Emory Baccharis	*Baccharis emoryi*
Seep Willow	*Baccharis salicifolia*
Blackbrush	*Coleogyne ramosissima*
Fremont Dalea	*Dalea fremontii*
Green Brittlebush	*Encelia frutescens*
Joint Fir (Mormon Tea)	*Ephedra* sp.
Narrowleaf Goldenbush	*Ericameria linearifolia*
Rubber Rabbit Brush	*Ericameria nauseosa*
Flat-Top Buckwheat	*Eriogonum fasciculatum*
Winterfat	*Eurotia lanata*
Hopsage	*Grayia spinosa*
Snakeweed	*Gutierrezia* sp.
White Burro Brush	*Hymenoclea salsola*
Creosote Bush	*Larrea tridentate*
Anderson Thorn Bush	*Lycium andersonii*
Arrowweed	*Pluchea sericea*
Sage	*Salvia dorrii*
Globe Mallow	*Sphaeralcea ambigua*
Seepweed	*Suada moquinii*
Parish Golden Eye	*Vigueria deltoidea*
Grasses	
Wild Oats	*Avena fatua*
Red Brome	*Bromus rubens*
Cheat Grass	*Bromus tectorum*

Common Name	Scientific Name
Sedge	*Carex* sp.
Salt Grass	*Distichlis spicata*
Big Galleta Grass	*Hilaria rigida*
Grasses (cont.)	
Common Barley	*Hordeum vulgare*
Rush	*Juncus* sp.
Rabbit-foot Grass	*Polypogon monspeliensis*
Johnson Grass	*Sorghum halpense*
Sand Dropseed	*Sporobolus cryptandrus*
Perennial Forbs	
Pickle Weed	*Allenrolfea occidentalis*
Nevada Onion	*Allium nevadense*
Desert Anemone	*Anemone tuberose*
Mariposa Lily	*Calochortus flexuosus*
Cryptantha	*Cryptantha tumulosa*
Wild Gourd	*Cucurbita foetidissima*
Wild Parsley	*Cymopterus purpurea*
Sacred Datura	*Datura wrightii*
Desert Hyacinth	*Dichelostemma pulchellum*
Desert Trumpet	*Eriogonum inflatum*
Pepperweed	*Lepidium montanum*
Desert Tobacco	*Nicotiana obtusifolia*
Evening-Primrose	*Oenothera caespitosa*
Palmer's Penstemon	*Penstemon palmeri*
Desert Rhubarb	*Rumex hymenosepalus*
Groundsel	*Senecio douglasii*
Prince's Plume	*Stanleya pinnata*
Annual/Biennial Forbs	
Mojave Sand Verbena	*Abronia pogonantha*
Fiddle Neck	*Amsinckia intermedia*
Milk-Vetch	*Astragalus eremiticus*
Nuttall's Milk-Vetch	*Astragalus nuttallianus*
Locoweed	*Astragalus* sp.
Desert Marigold	*Baileya multiradiata*
White Tackstem	*Calycoseris wrightii*
Cammissonia	*Cammissonia scapoidea*
Shepard's Purse	*Capsella bursa-pastoris*
Indian Paintbrush	*Castilleja* sp.
Showy Dusty Maiden	*Chaenactis macrantha*
Sandmat	*Chamaesyce albomarginata*
Blue Mustard	*Chorispora tenella*
Rigid Spiny Herb	*Chorizanthe rigida*

Common Name	Scientific Name
Nevada Cryptantha	*Cryptantha nevadensis*
Cryptantha	*Cryptantha* sp.
Larkspur	*Delphinium* sp.
Tansy Mustard	*Descurainia Sophia*
Spectacle Pod	*Dimorphocarpa wislizenii*
Spikerush	*Eleocharis* sp.
Miniature Woolstar	*Eriastrum diffusum*
Filaree	*Eriodium cicutarium*
Skeleton Weed	*Eriogonum deflexum*
Gilia	*Gilia inconspicua*
Keysia	*Glyptopleura setulosa*
Salt Heliotrope	*Heliotropium curassavicum*
Goldfields	*Lasthenia chrysostoma*
Annual/Biennial Forbs (cont.)	
Peppergrass	*Lepidium lasiocarpum*
Bladder Pod	*Lesquerella arizonica*
Annual Deer Vetch	*Lotus alamosanus*
Bajada Lupine	*Lupinus concinnus*
African Mustard	*Malcomia Africana*
White-Stem Blazing Star	*Mentzelia albicaulis*
Blazing Star	*Mentzelia* sp.
Silver Puffs	*Microseris linearifolia*
Nama	*Nama demissum*
Thread Plant	*Nemocladus glanduliferus*
Comb-Bur	*Pectocarya* sp.
Popcorn Flower	*Pectocarya* sp.
Scorpion Weed	*Phacelia crenulata*
Fremont's Phacelia	*Phacelia fremontii*
Wire Lettuce	*Stephanomeria pauciflora*
Little Twist Flower	*Streptanthella longirostris*
Dandelion	*Taraxacum officinale*
Thelypodium	*Thelypodium lasiophyllum*
Cocklebur	*Xanthium strumarium*
Succulents	
Strawberry Hedgehog Cactus	*Echinocereus engelmannii*
Buckhorn Cholla	*Opuntia acanthocarpa*
Mojave Prickly Pear	*Opuntia erinacea*
Narrow Leaf Yucca	*Yucca angustissima*
Banana Yucca	*Yucca baccata*

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