

FINAL REPORT

Contract Number: 12-146-000-4836
Project Name: Habitat Restoration at the Oso Bay Wetlands Preserve – Phase I
Entity: City of Corpus Christi Oso Bay

Task 1:

Develop a Habitat Restoration and Monitoring Plan with the support of a local advisory committee comprised of local stakeholders, and state and federal natural resource agency personnel.

Beginning with the National Park Service Stakeholder Workshop in August 2012 (see Task 3) - local and regional stakeholders helped to lay the groundwork for habitat restoration. Stakeholders included persons from independent school districts, home builders, Coastal Bend Bay and Estuaries Program, Coastal Bend Bays Foundation, Gulf of Mexico Foundation, Convention & Visitor's Bureau, Nueces Rivery Authority, Texas Parks and Wildlife, RVI Planning & Design (consultant for Oso Bay), and City of Corpus Christi.

Monitoring was not conducted during the project period, because the construction schedule was delayed and the prescribed monitoring is scheduled for November 2014, March 2015, and annually in August beginning in 2015. Restoration of plant material occurred in August 2014.

A reduction in the budget was not needed because the monitoring was to be conducted through trained City staff working at the Oso Bay Wetland Preserve after habitat restoration (by contractor) was completed in August 2014.

The funds originally dedicated to monitoring were needed for actual restoration activities by contractor (Reytec) – Item I5 – Attachment A - description attached.

Task 2

Undertake Restoration Activities identified in the first-year implementation of the Restoration and Monitoring Plan. The majority of the restoration activities will be performed through contractual arrangements by subcontractors. A portion of the restoration effort will be undertaken by volunteers under the direction and with the assistance of City staff. The involvement of the public in these volunteer projects is critical to the education effort and the long term maintenance of the project. Due to the limits imposed by the growing season, the City anticipates that limited restoration activities will take place in the later winter 2013 and then again in the early fall 2014. The City anticipates scheduling two volunteer restoration events over the course of the project.

(Attachment B – Photos of activities and results)

Once acquired by the City of Corpus Christi in 2009 and conservation easements in place 9 months later – the battle began to eliminate illegal activity at the preserve. Objects that had been dumped were removed by city staff beginning in 2010. The first gates and fences installed to prevent illegal access were run over and destroyed. Over ten acres were restored through these preventive actions – and over twenty were prepared for further restoration – to include the planting of trees and native grasses.

Over 300 wooden bollards were installed by city staff at each of the various access points over the period October 28-30, 2013.

A volunteer event was held on February 1, 2014 with 24 Texas A&M University students. Over 750 pounds of

debris were removed from the sensitive sand flats, mud flats, marshes and upland prairie areas including trash, tires, metal pipe and scrap lumber.

In July of 2014, city staff put forth a concentrated effort to clean up the pond under the Holly Rd trail bridge. Car batteries, car seats, bicycles and other heavy debris were removed from the watershed pond that empties into the Oso Bay wetlands.

In August 2014 a half acre of the upland prairie at Oso Bay was disked by tractor to remove invasive species root systems and aerate soil. The soil was raked after a native seed mixture of coastal prairie species was evenly spread through the area.

Also in August 2014, Belaire Environmental restored two large wetland areas at the preserve. The target area was empty sand flats, both naturally occurring and caused by human. A group of Belaire workers collected different native grass species from the wetlands occurring at the preserve. These collected grasses were transplanted and watered twice a week for a period of six weeks.

The two areas selected are important both for ecological reasons and biological reasons. The north side (Hawk watch) was planted on an area heavily disturbed by humans, and very close to the Hawk watch tower, which is a focal point for visitors. The south side restoration area was lightly affected by human activity, but is farther away from the naturally occurring wetlands. The proper propagation of wetlands on this side is essential to bring previously present wetlands back to the preserve and boost native species propagation.

Realizing that the grant ends September 30, 2014 – we must mention that our first corporate event sponsored by CITGO, will be held on Saturday, November 22, 2014. The Oso Bay Wetland Preserve will host CITGO volunteers, CCISD students, Texas A&M University-Corpus Christi students, and other local volunteers. The group will re-vegetate areas of the preserve that have been deforested due to human activities. The event was originally scheduled in September – but CITGO had to delay the event.

Task 3

Develop and implement a public education and outreach strategy, including on-site interpretation of ongoing restoration efforts, press releases, presentation at the Coastal Bend Bays Foundation Coastal Issues Forums, and other public venues. The City will use the stakeholder group for guidance in developing the education/outreach plan. City staff will be responsible for implementation of the education/outreach plan with the opening of the Learning Center in Spring 2015.

Public meetings were held in April and August of 2011 (see Attachment B-2 for Press Release and Director's Public Letter to Residents) Education and outreach efforts included a presentation of the Master Plan for Oso Bay Wetland Preserve and request for approval by the City Council. The Master Plan was presented to City Council on October 11, 2011 and approved on October 18, 2011 by public notice. Shortly following this adoption, a presentation of the Master Plan was provided to the Coastal Bend Bays Foundation at the Coastal Issues Forum. The Master Plan highlights the restoration of prairie and estuarine wetlands, as well as the uplands (Attachment C, slides 8-10 of attached Master Plan presentation).

In August 2012, the National Park Service provided technical assistance to the City to assist in determining resources and partnerships in the development of educational elements. The main areas identified were habitat restoration, educational exhibits (including wetland protection and restoration, coastal erosion, nonpoint source pollution, alternative energy), teaching and habitat gardens, wildlife and environment viewing areas, and outdoor recreation.

A draft education outreach strategy presented to stakeholders at September 12, 2012 meeting – with Programming Subcommittee members (Attachment D). A draft of the strategy is also attached (Attachment E).

The final education/outreach strategy (Attachment F) has not been implemented. Oso Bay Wetland Preserve program staff will be hired in January and February of 2015 – positions have been included in the General Fund budget. The kickoff of the education and outreach programming will occur with camps at Oso Bay Wetland Preserve during the summer of 2015.

Attachment A

PROJECT: Oso Bay Area Park Development
Phase 2 - PR 3380
Contractor: Reytec Construction Resources, Inc.

Budget
Item I5: Planting at Wetlands Enhancements 150,000.00

Habitat Restoration and Management

Contractor has hired subcontractor, Belaire Environmental, to perform the deliverables for this item. Since Texas Parks and Wildlife regulates the introduction and stocking of aquatic plants into the public water of the state - permit for these plantings was secured as of 7/28/14.

Stocking of plants will include:

- 5,000 3-stem sprigs of gulf cordgrass, *Spartina spartinae*;
- 5,800 3-stem sprigs of marshhay cordgrass, *Spartina patens* ;
- 800 3-stem sprigs of saltgrass, *Distichlis spicata* ;
- 50 3-stem sprigs of seashore dropseed, *Sporobolus virginicus* ;
- 50 3-stem sprigs of shoregrass, *Mononothochloe littoralis* ;
- 50 3-stem sprigs of seashore paspalum, *Paspalum vaginatum* ;

Stocking will occur into three (3) wetland restoration sites within Oso Bay Park.

The following conditions for the TPWD permit will be met as part of the scope of work for Belaire Environmental:

1. The applicant will adhere to TPWD guidelines for transplanting the application species. Confirmation of appropriate elevations at the planting site should be completed prior to harvesting donor specimens.
2. The harvested and transplanted plug size will be a 3-stem sprig.
3. The permittee will provide notice to TPWD field contact of the plans to transplant material at least one week prior to transplant activities.
4. The permittee will notify TPWD upon completion of the restoration activities.
5. Suveys will be conducted at 60 days, 6 months and 1 year following the initial transplanting effort at all three (3) sites. A written report detailing the results shall be provided to TPWD staff within 30 days of completing the survey. The monitoring report should not percent survival and should also include any unusual sedimentation variation and depth of soft-sediment accumulations throughout the transplant site.
6. Should any of the three sites not achieve 25% aerial coverage of the targeted vegetative species by the end of year 1, the applicant will consult with TPWD for remedial measures.

Funding Breakdown:

City funds	13,974.00	
TCEQ SEP	29,297.20	(separate check)
CMP GLO grant	81,728.80	550030-1067-823001-00000
TPWD Outdoor grant	25,000.00	550030-1067-823200S-00000
CIAP GLO grant	-	550030-1067-824500-00000
	<u>150,000.00</u>	

Attachment B



October 2013
Installing 300 bollards to prevent damage



Attachment B



February 2014

Volunteers from Texas A&M University-Corpus Christi

Attachment B



July 2014

City Staff restoration activities

Attachment B



August 2014
Habitat Restoration by Belaire Environmental





NEWS RELEASE

FOR IMMEDIATE RELEASE

April 18, 2011

Contact: Michael Morris, Director, Parks and Recreation
361-826-3464

PUBLIC INPUT SOUGHT ON CITY'S OSO BAY LEARNING CENTER AND WETLAND PRESERVE

The City of Corpus Christi Parks and Recreation Department invites everyone to a community meeting to share ideas as the City works to develop a Master Plan for the Oso Bay Wetland Preserve and learning Center. The meeting will be held at 6 p.m. Thursday, April 21, 2011 in the cafeteria at Barnes Elementary School, located at 2829 Oso Parkway.

During the meeting, residents will also be able to visit with team members from the Parks and Recreation Department and the City's consultants, RVI Planning and Landscape Architecture. "We want to solicit ideas from all who are interested in order to make this park a special place for the entire community," said Michael Morris, Director of Parks and Recreation.

The Oso Bay Wetland Preserve and Learning Center, which was part of the voter-approved 2008 Bond Issue, will be located on 161 acres of land along Oso Bay at the end of Wooldridge Road. The park is expected to include such things as a Green Learning Center, wetlands, a walking and nature trail, an amphitheater, bay and wetlands overlooks, a nature playground, walking bridges with connections to Oso Bay and a camping area. The park will also be completely ADA accessible.

In order to make sure an adequate amount of materials are available at the community meeting, Parks and Recreation officials ask that those planning to attend RSVP by 5 p.m. Tuesday, April 19, 2011 to Tracey Weber at 826-3463 or at traceym@cctexas.com.

###



City of
Corpus
Christi

**PARKS & RECREATION
DEPARTMENT**

PO Box 9277

Corpus Christi

Texas 78469-9277

Phone 361.826.3460

Fax 361.826.3864

www.cctexas.com

www.ccparkandrec.com

Live. Learn. Play!



July 22, 2011

The Corpus Christi Parks & Recreation Department has developed a preliminary Master Plan for the Oso Bay Learning Center and Wetland Preserve to be located on 161 acres of land along the Oso Bay at the end of Woolridge Road. We want to solicit your ideas on the components of this Preliminary Master Plan.

On Thursday, August 11th at 6:00pm, team members from the Parks & Recreation Department and from our consultants, RVI Planning and Landscape Architecture, will be hosting a Community Meeting at Barnes Elementary (Cafeteria Area), 2829 Oso Parkway to gather your input on the Preliminary Master Plan that has been developed. We hope you and your neighbors can join us for this meeting.

In order to prepare an adequate amount of materials for the meeting, please RSVP to Tracey Weber at 826-3463 or traceym@cctexas.com by August 8th.

We look forward to meeting you and creating a plan together for the Oso Bay Learning Center and Wetland Preserve!

Sincerely,

Michael Morris
Director of Parks & Recreation



Oso Bay Wetlands Preserve and Learning Center

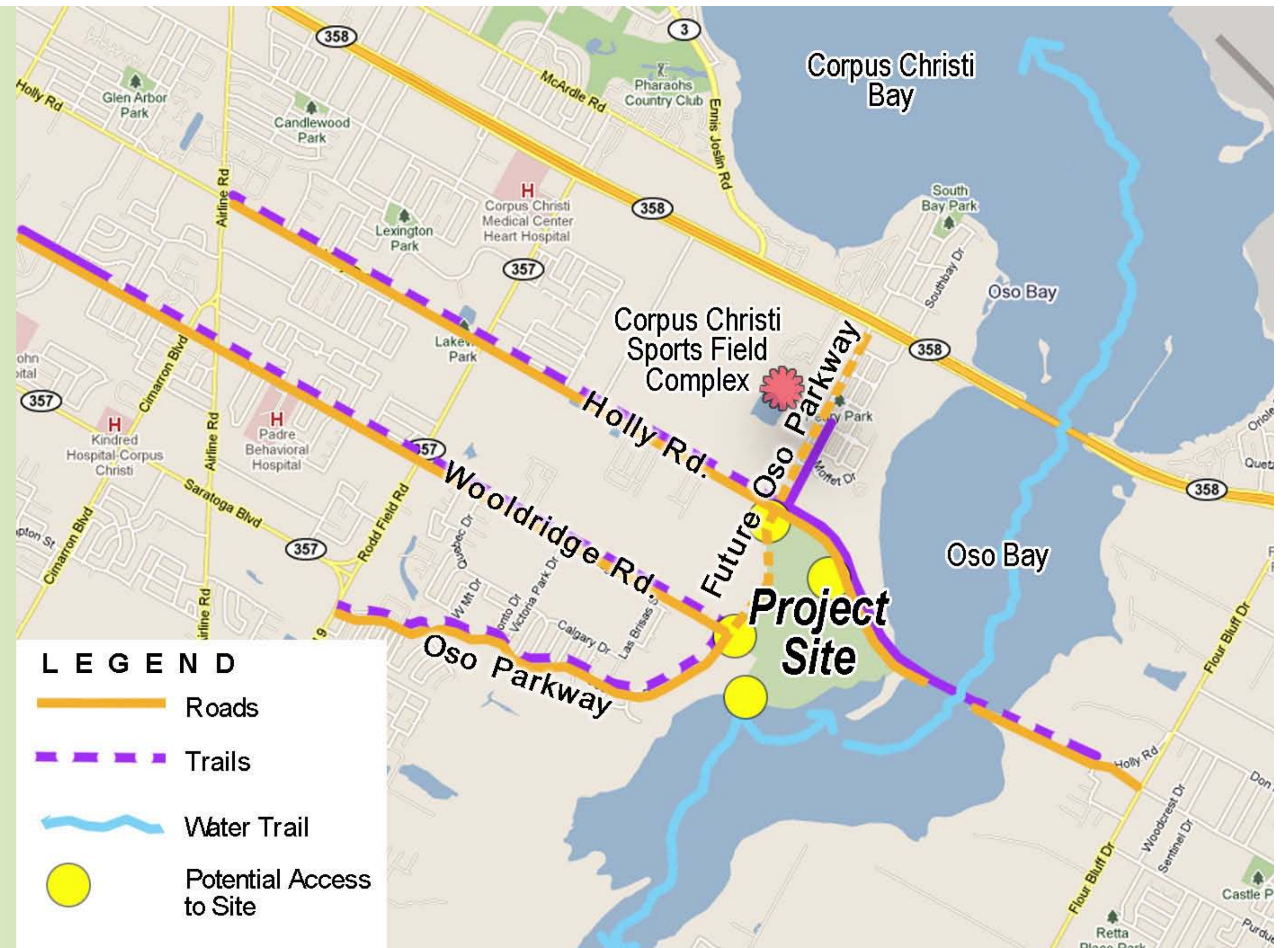


MASTER PLAN SEPTEMBER 2011

City of Corpus Christi
City of Corpus Christi Parks and Recreation
RVI Planning + Landscape Architecture + Graphic Design
Gignac Landscape Architecture
WKMC Architects
Belaire Environmental, Inc.
RVE, Inc.

- 1** Project History
- 2** Inspiration
- 3** Entry Experience and Edge Conditions
- 4** Trails and Overall Plan
- 5** Habitat Restoration
- 6** Learning Center Site Plan and Experience
- 7** Architectural Sketches and Floor Plans
Building Performance and Education Goals
- 8** Implementation





2004-2006 Early Planning

Oso Creek and
Bay Greenbelt
Master Plan

2005-2009 Land Acquisition

- Carr Tract 2005
- Gaines Tract 2009

2008-2011 Funding

- Bond 2008
- Grants

SUMMER 2011 Master Planning

- Programming & Site Analysis
- Stakeholder Meetings
- Preliminary Master Plan
- Final Master Plan

COMPLETE AUGUST 2012 Phase One Construction

Trails

COMPLETE SUMMER 2013 Phase Two Construction

Preserve and
Learning Center

1 Project History



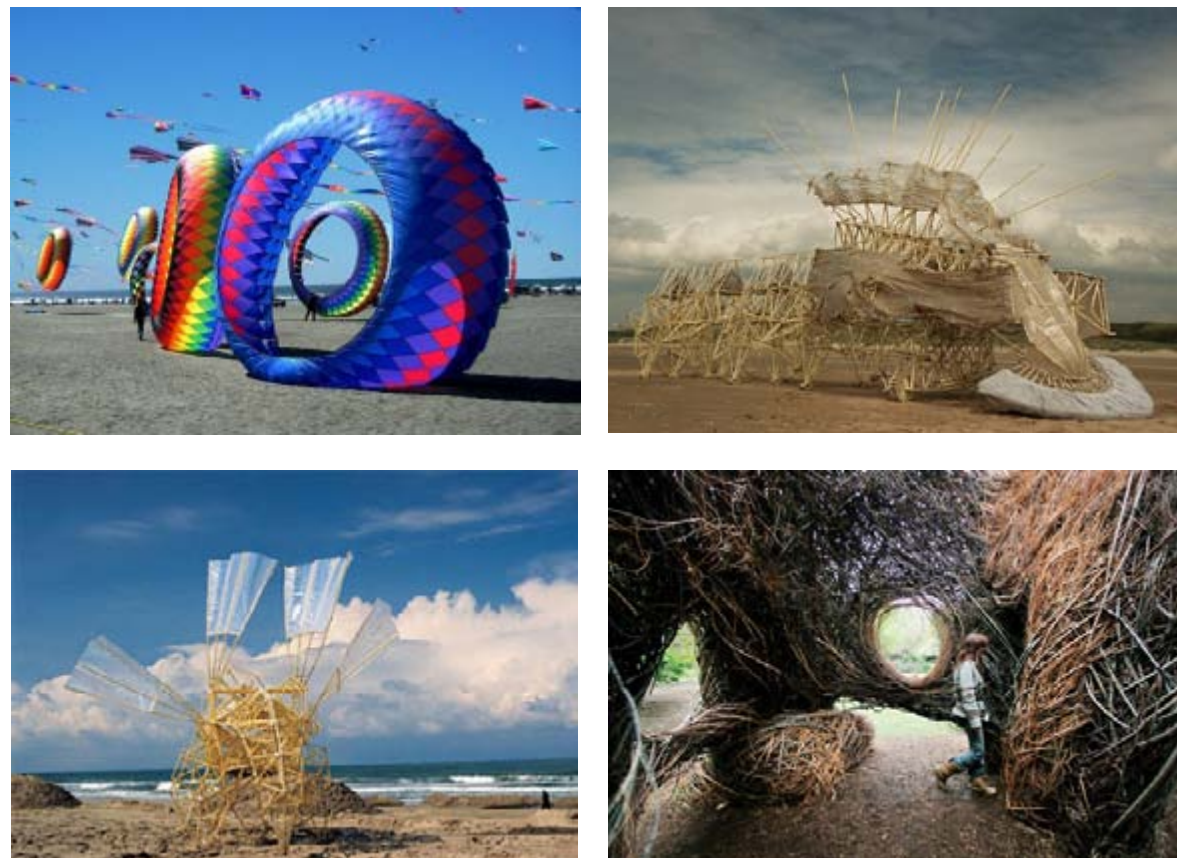
*Create a place
that stimulates the
imagination.*



*Create a self sustaining
resource implementing
Net Zero consumption
principles.*



*Create a living,
breathing ecosystem
where visitors will
connect with nature.*



Wind ✿ Nature ✿ Art



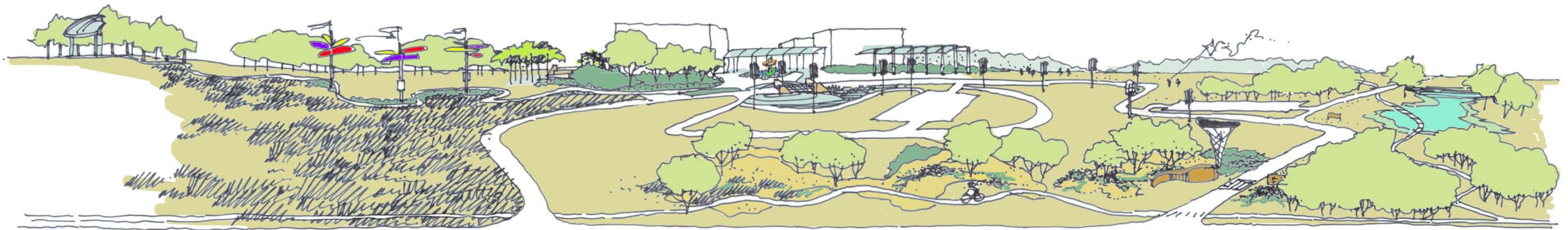
✿ Net Zero ✿



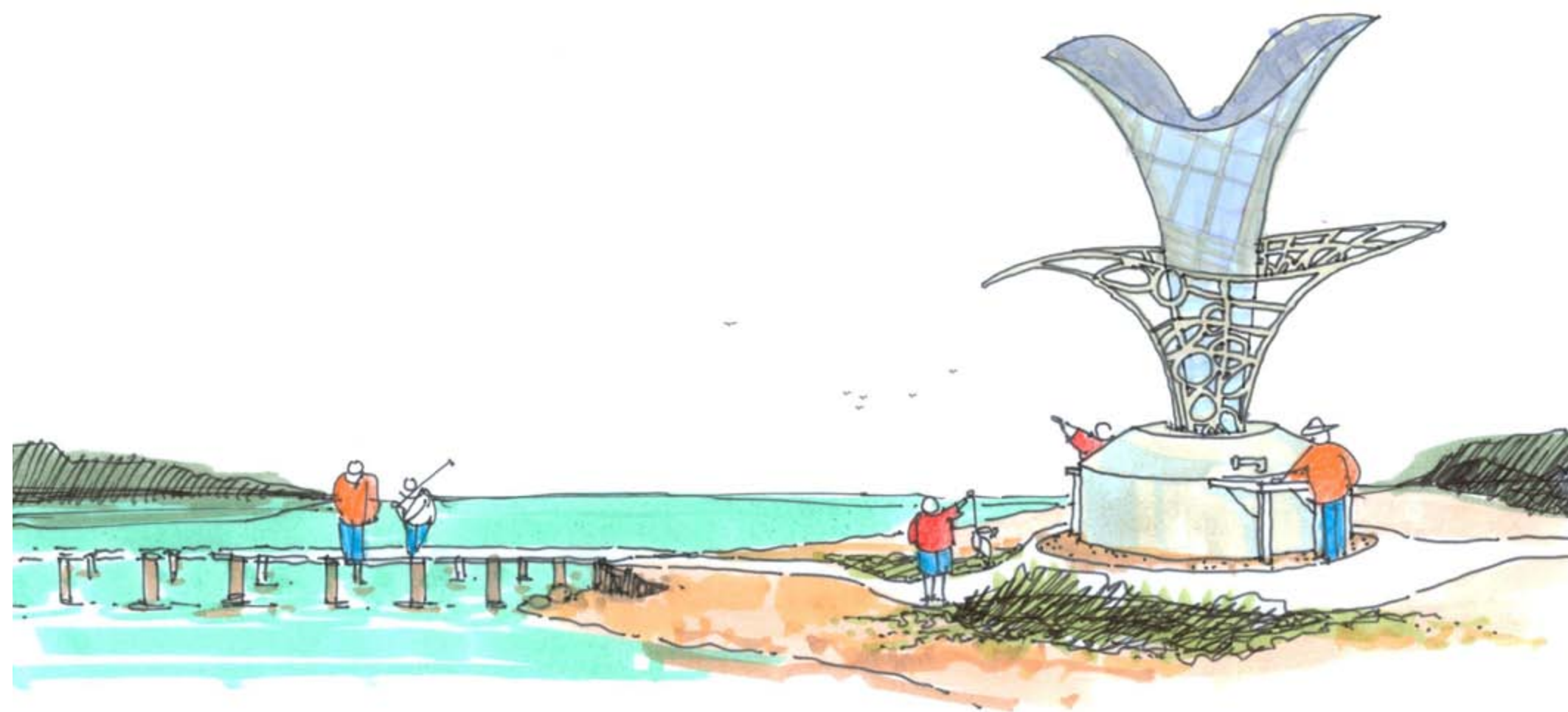
✿ Habitat ✿

2 Inspiration





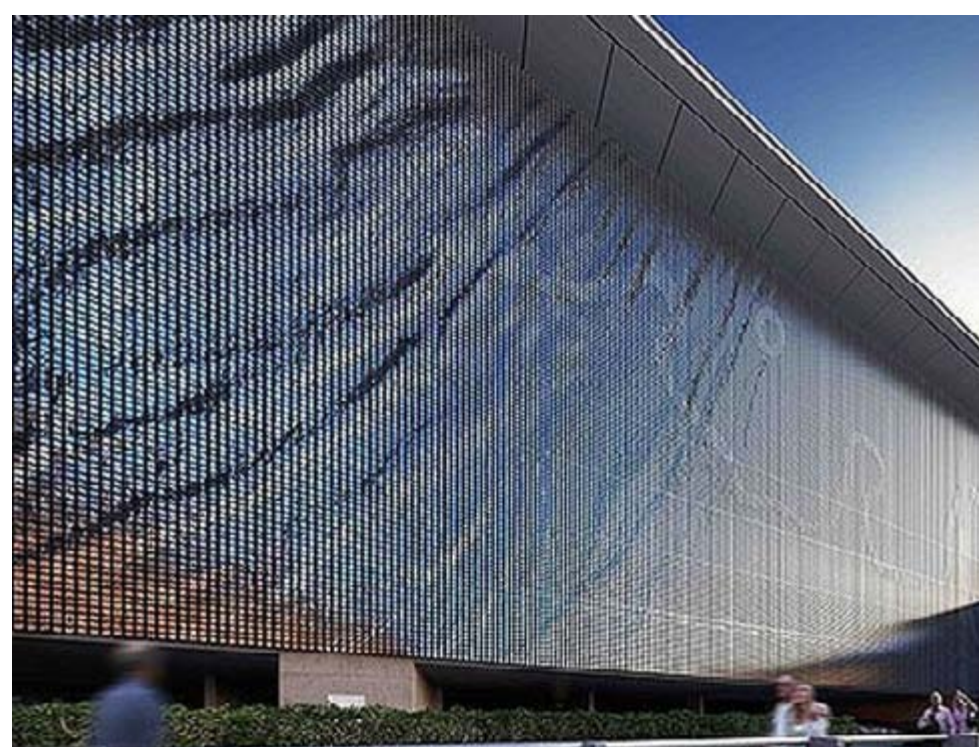
What will you see from your car along Oso Parkway and the entry drive?



Landmark at pier edge



Oso Bay overlook



Wind ✿ Nature ✿ Art



✿ Net Zero ✿



✿ Habitat ✿



3 Entry Experience and Edge Conditions



4 Trail Plan





4 Overall Site Plan



How will you experience this habitat?



Habitat Location



Boardwalk made from Recycled Products



Boardwalk Leading to Bird Blind



Informational Signage and Interactive Kiosk For Recording On Site Sightings



Blind w/Birding Stats on Slats or Donor Names

What is attracted?



Blue winged teal



Black-bellied whistling duck



Harris's Hawk



Roseatte spoonbill



American Kestrel



Green tree frog



Night heron

What type of plants are here?



Rattlebush



Swamp smartweed



Duck potato



Coastal spikerush



Existing Site Photos

5 Habitat Restoration - Prairie Wetland



How will you experience this habitat?



Boardwalk and Viewing Shelter



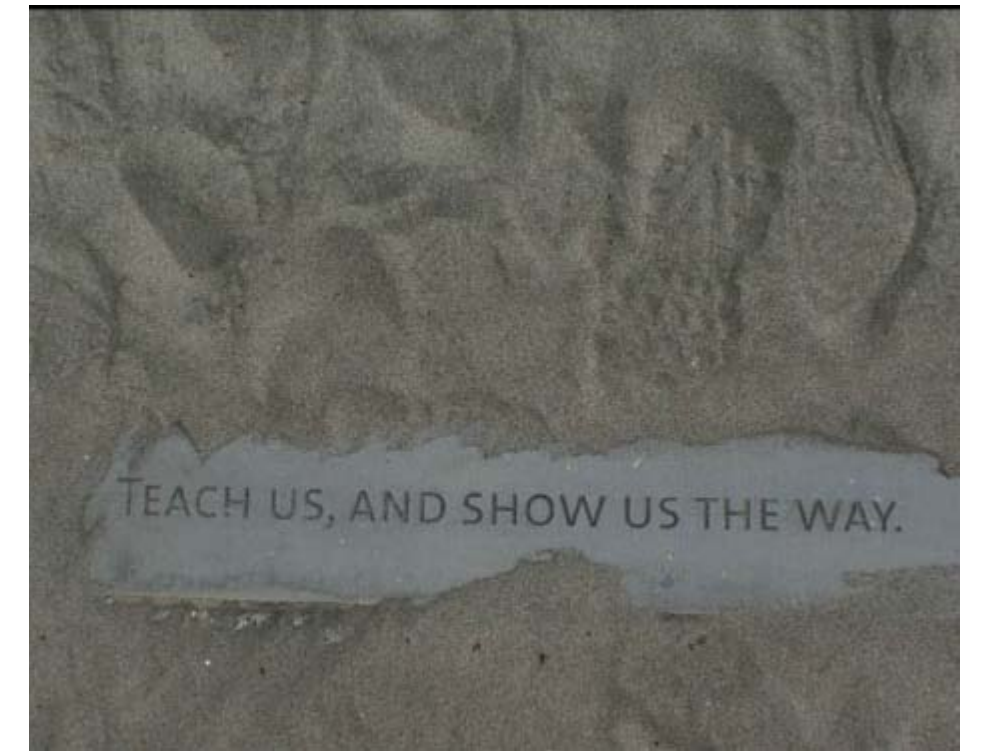
Viewing Shelter / Bird Blind



Decomposed Granite Trail



Trail Through the Sand



Habitat Location

What is attracted?



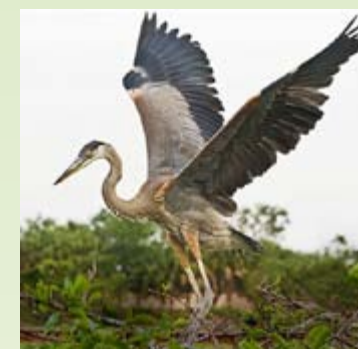
American avocet



Great egret



Osprey



Great blue heron



Long-billed dowitcher



Black-necked stilt



Crested caracara

What type of plants are here?



Gulf cordgrass



Sea ox-eye daisy



Shoregrass



Existing Site Photo



Existing Site Photo - Cordgrass



Existing Site Photo - Sand Flats

5 Habitat Restoration - Estuarine Wetland



How will you experience this habitat?



Boardwalk

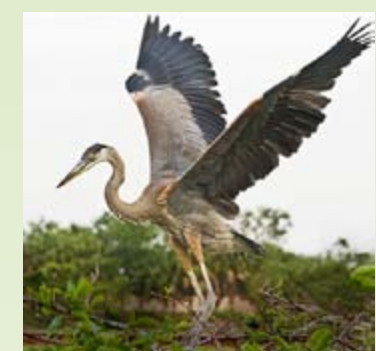


Hawk Walk



Habitat Location

What is attracted?



Great blue heron



Indigo bunting



Sandhill crane



Crested caracara



Loggerhead shrike



Ruby throated hummingbird



Golden fronted woodpecker

What type of plants are here?



Acacia greggii



Acacia rigidula



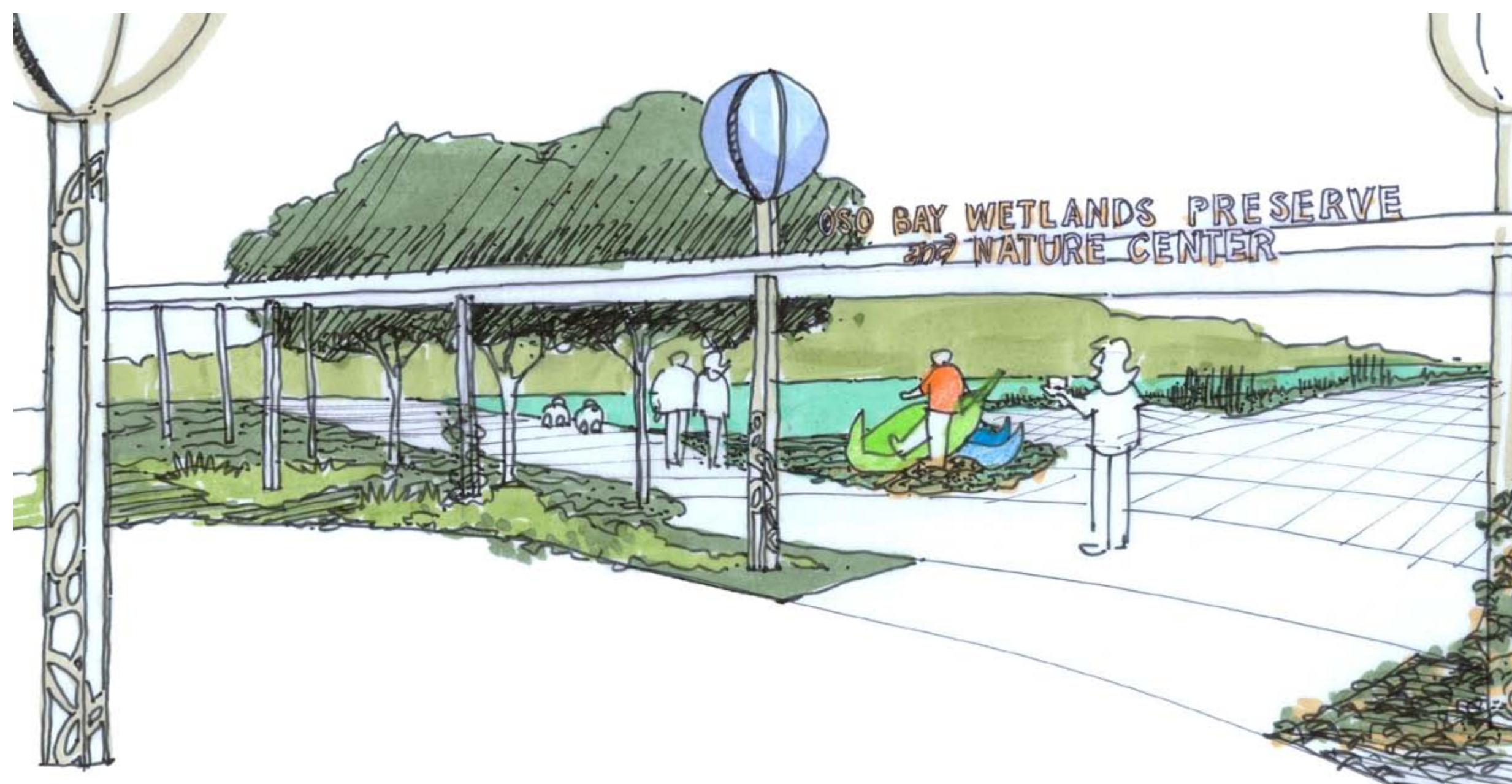
Lime prickly ash



Existing Site Photos

5 Habitat Restoration - Uplands





Whimsy Trail

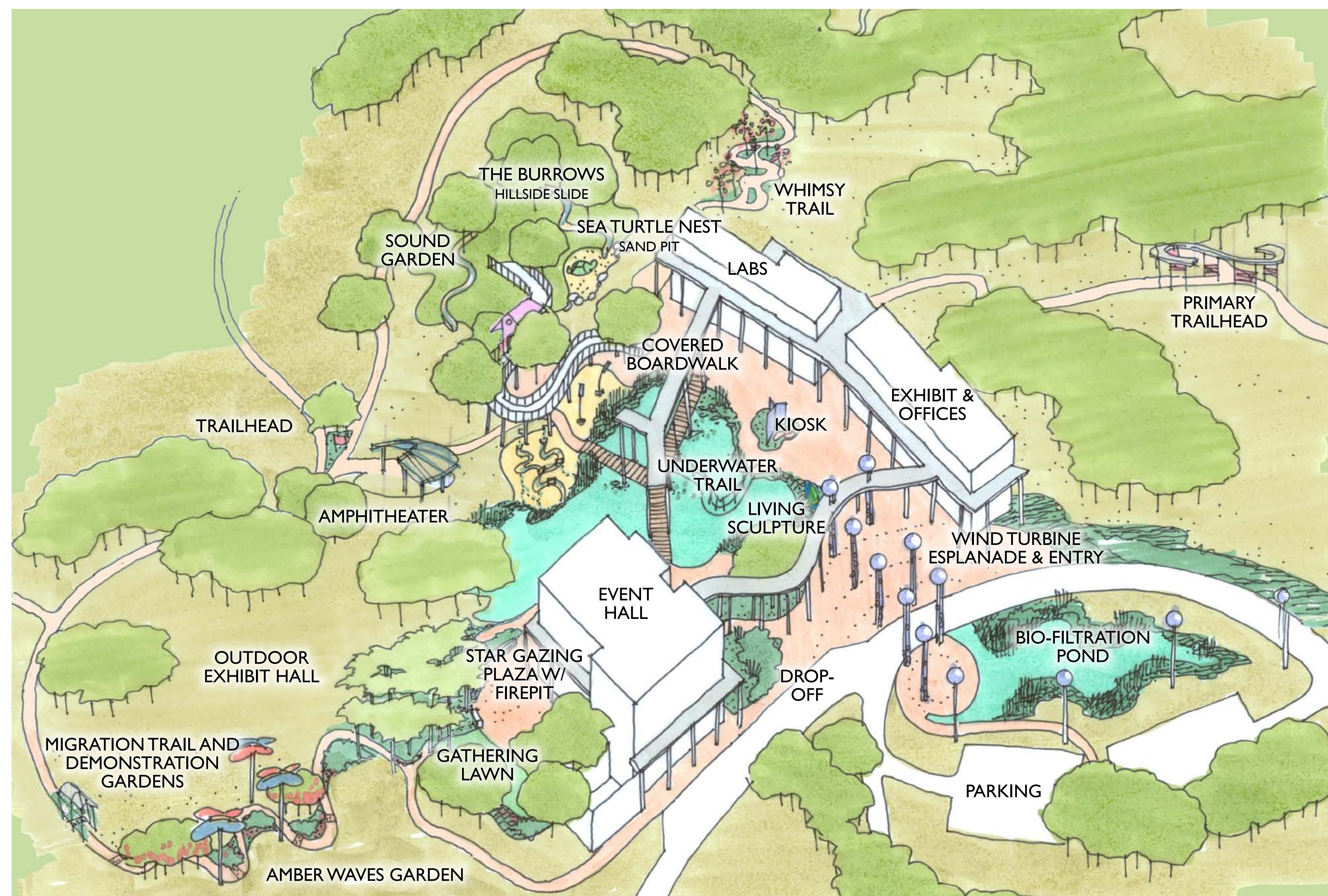


Prairie Pond



6 Learning Center Plan and Experience





Covered Boardwalk



Habitat



Formal Pond Edge



Prairie Pond



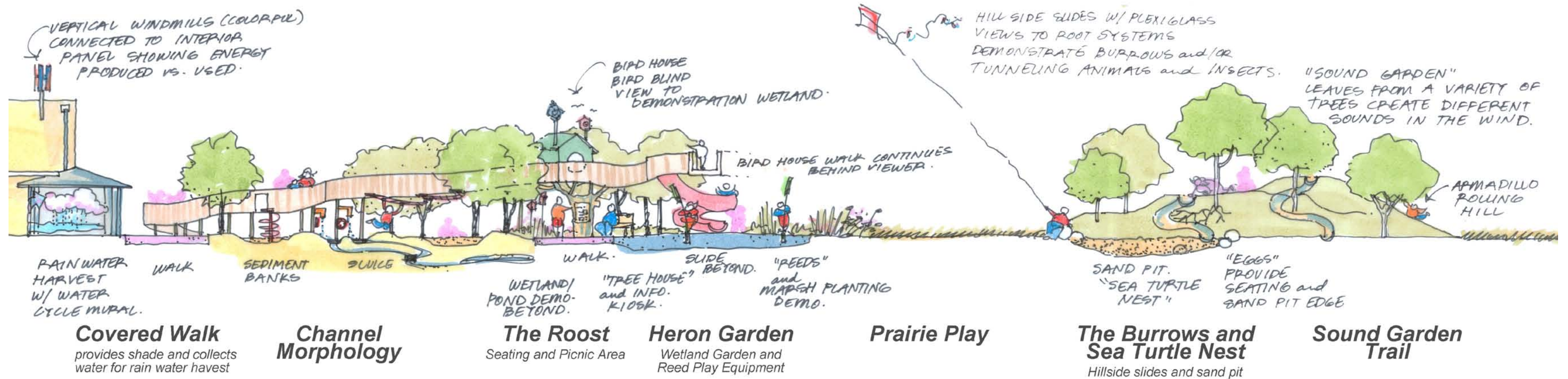
Outdoor Lab



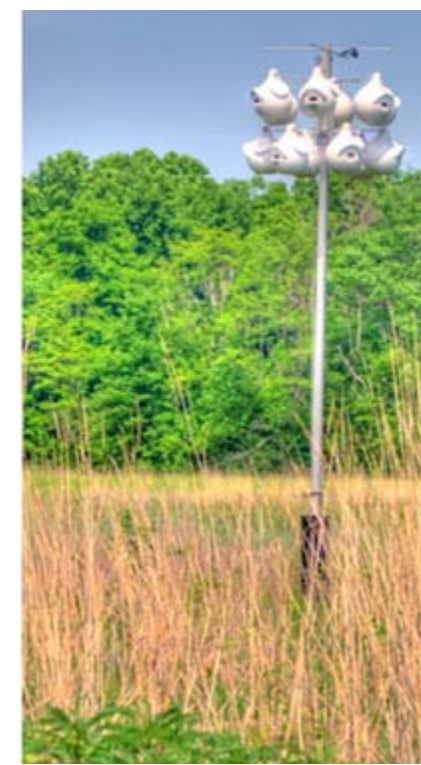
*Picnic Shelter and
Demonstration Area*

6 Learning Center Plan and Experience





Solar Panel and Wind Turbine



Bird Houses



Sand Pit



Vertical Axis Wind Turbine



Musical Kinetic Wind Sculpture



Bird House Walk



Channel Morphology



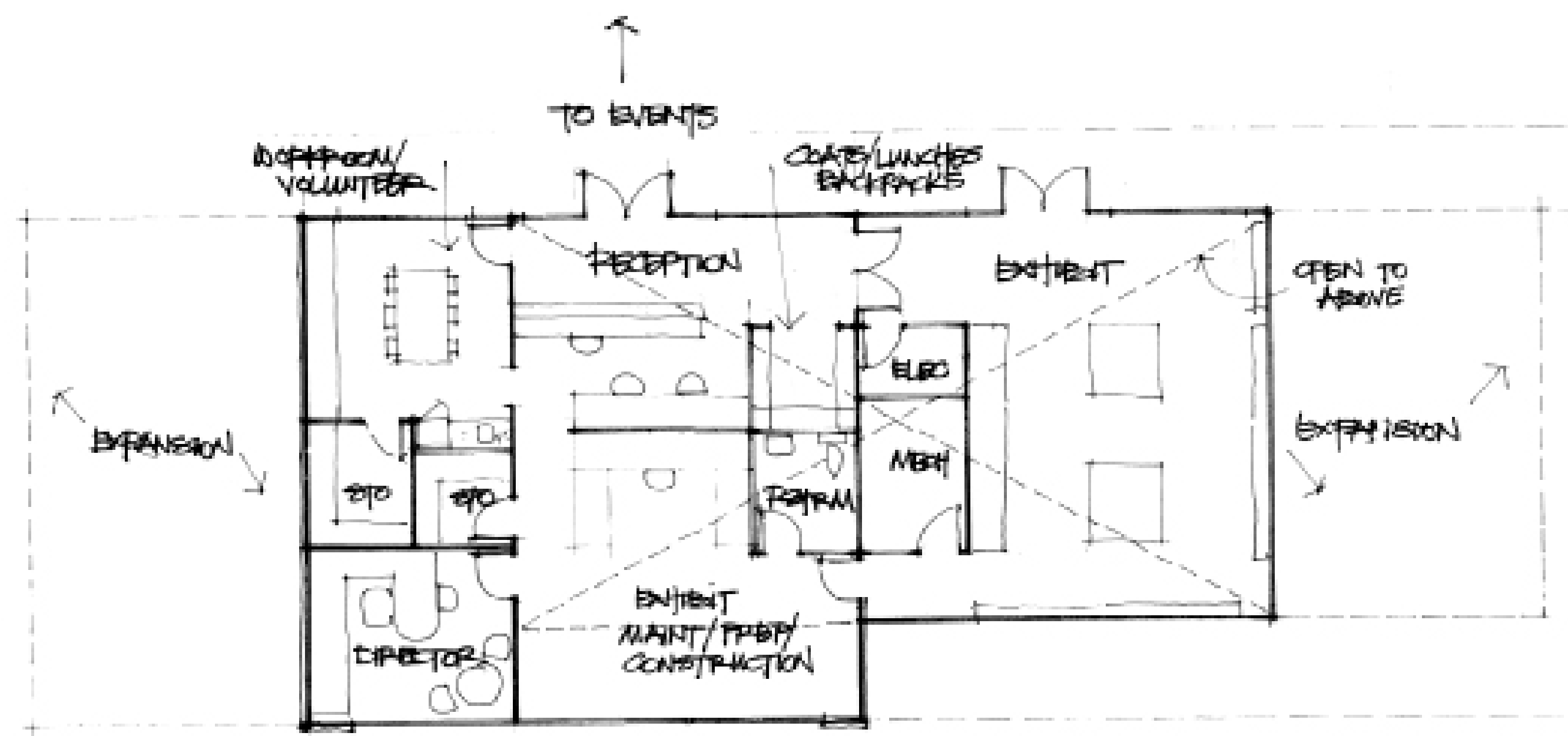
Play Reeds



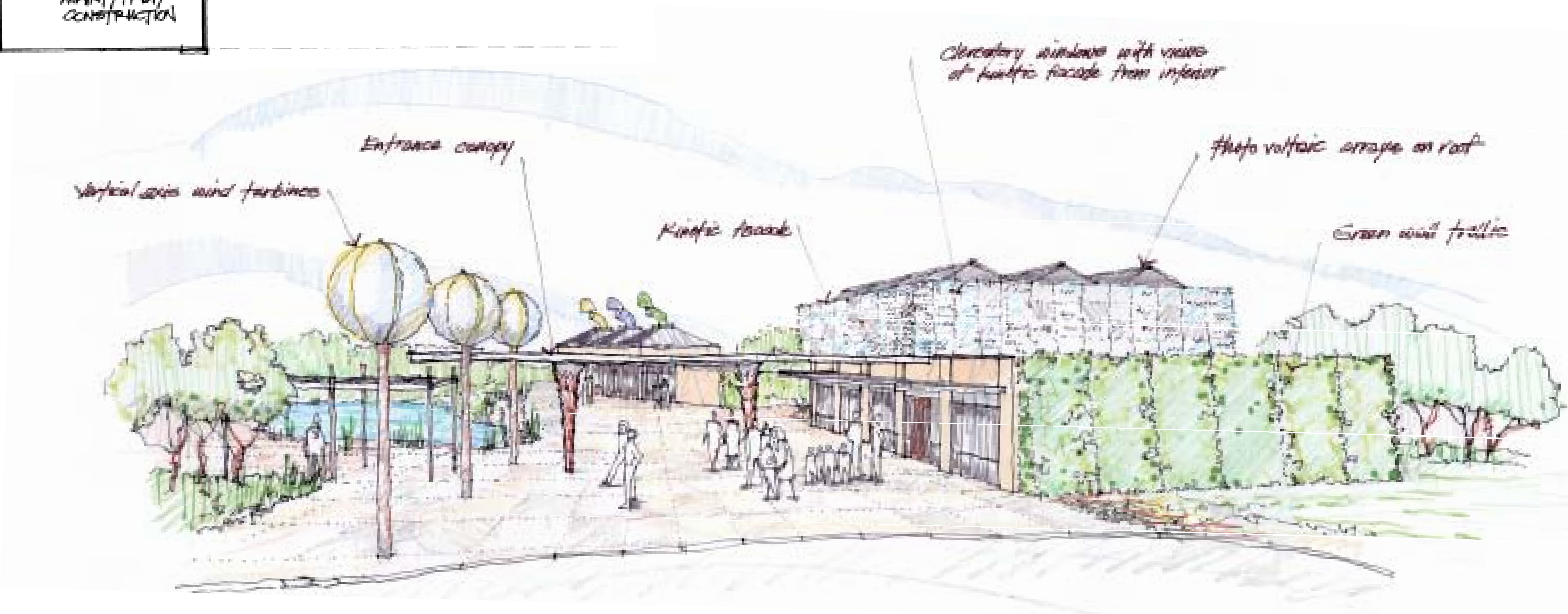
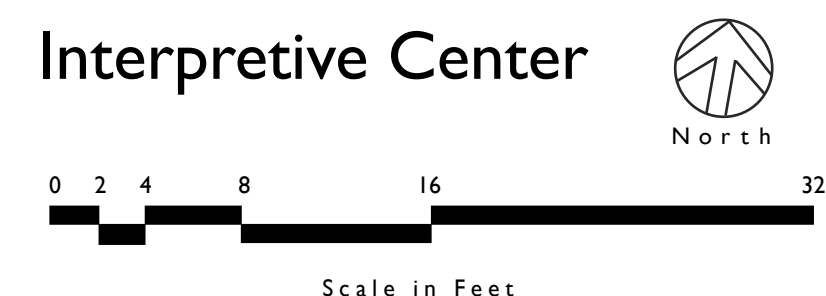
Hillside Slides

6 Learning Center Plan and Experience





**Entrance View
Looking East**



Static Photovoltaic Array



Discovery through Exhibits



Fabric Cast Concrete



Green Wall



Tracking Photovoltaic



Kinetic Wall

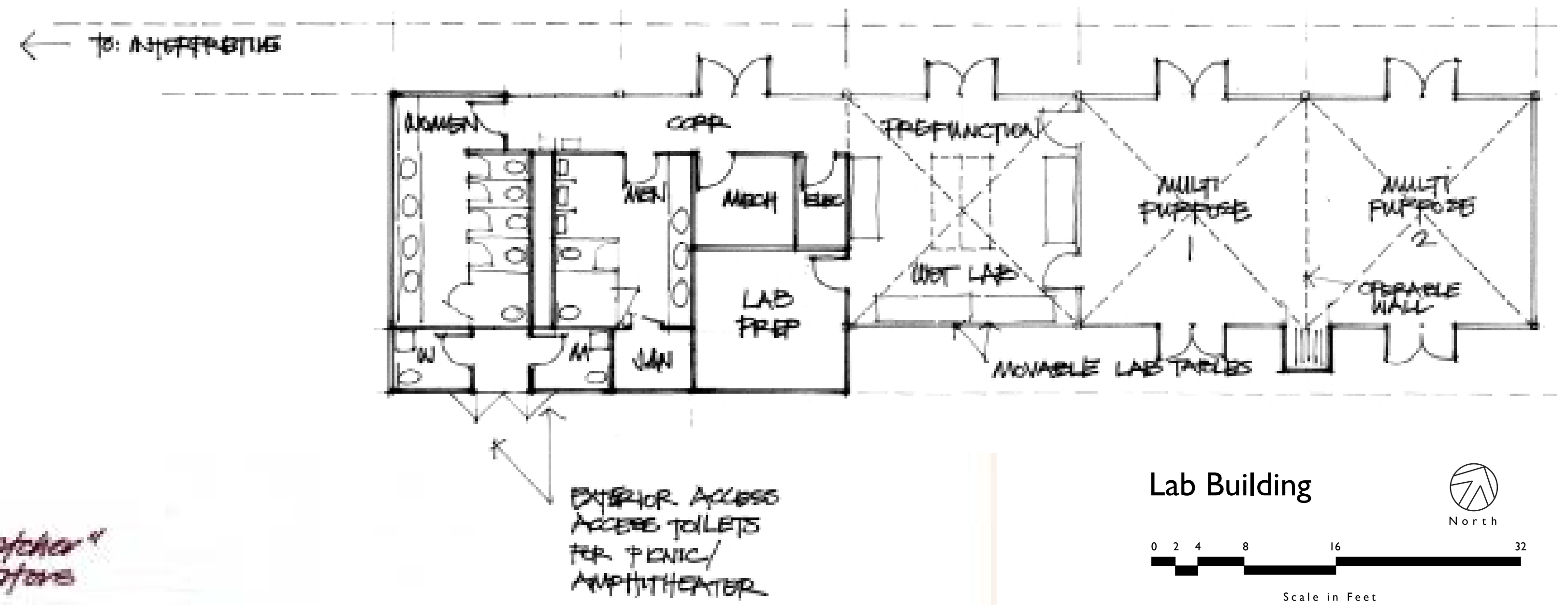


Kinetic Wall

7 Learning Center Floor Plans & Sketches



View from
Birdhouse Walk
Looking Southwest



Exposed Structure and Daylight Fabric Cast Concrete



Rotating Ventilators



Cistern Fabric Cast Concrete



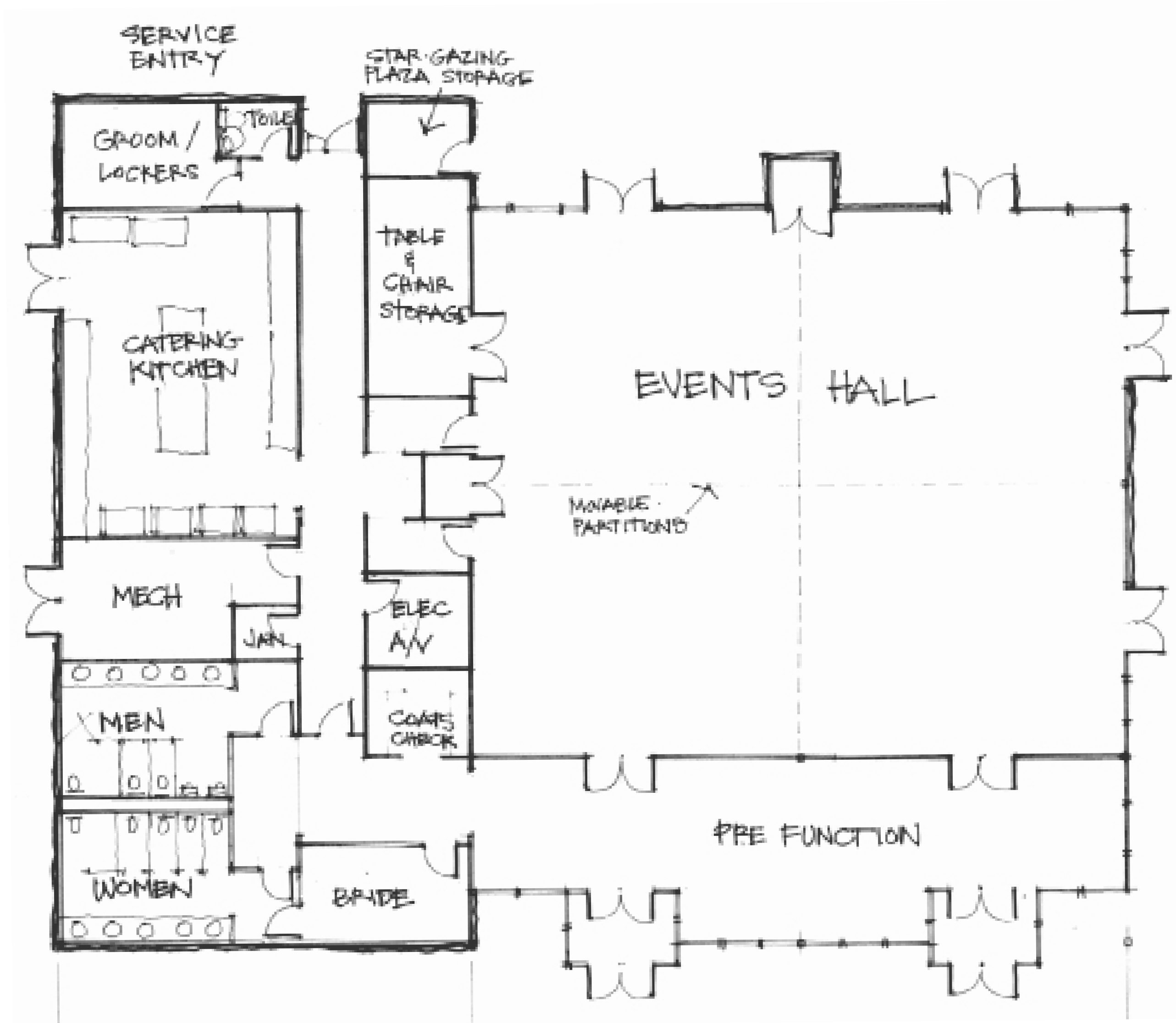
Exposed Structure and Daylight



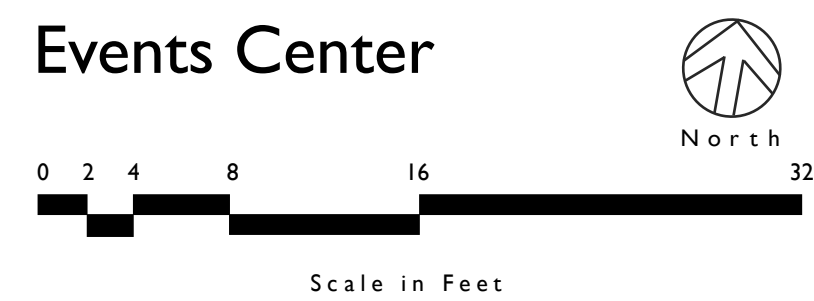
Rotating Ventilator

7 Learning Center Floor Plans & Sketches





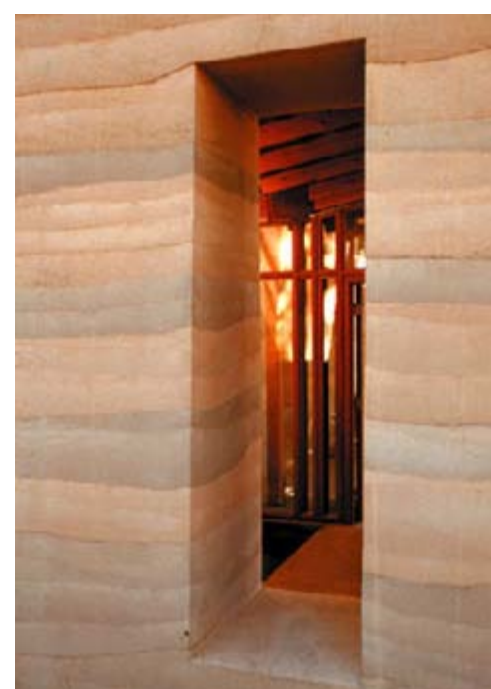
Events Center



View of Events Center from Pond Bio-Filter



Rammed Earth



Deep Opening



Thickened Walls



Green Wall



Rammed Earth



Solar Panel Covered Walkway

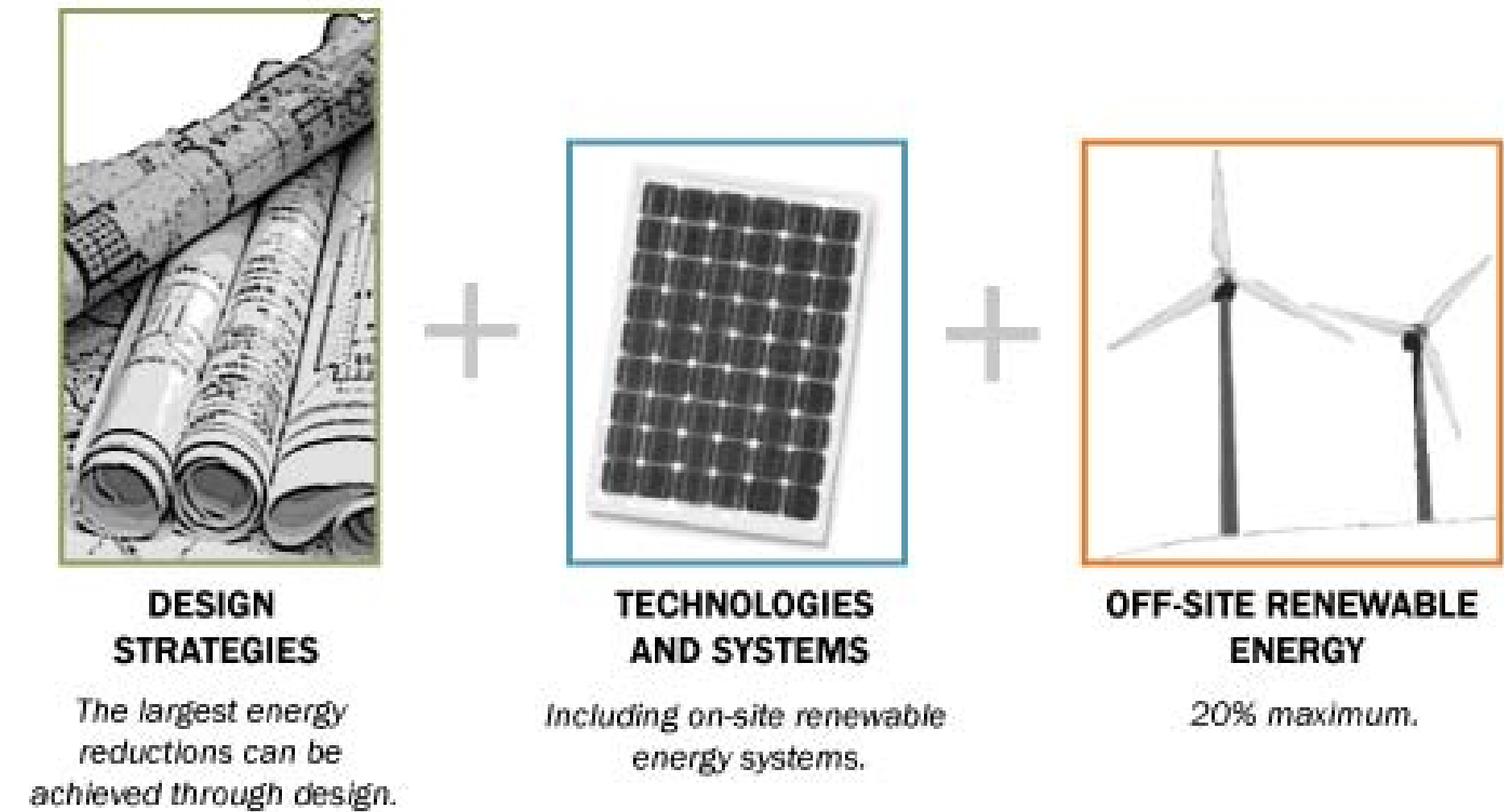


7 Learning Center Floor Plans & Sketches

Zero-Net-Energy Project

Designed, constructed, and operated to:

- require a greatly reduced quantity of energy to operate
- meet the balance of energy needs from sources of energy that do not produce greenhouse gases, and therefore result in no net emissions of greenhouse gases
- be economically viable



Source: ©2010 2030, Inc. / Architecture 2030. All Rights Reserved.

The LEED™ program is a green building certification system providing third-party verification that a project has been designed and constructed utilizing strategies that improve project performance:

- energy savings
- water efficiency
- CO2 emissions reduction
- improved indoor environmental quality
- stewardship of resources and sensitivity to their impacts
- reduced maintenance and cost of operation.



Leadership in Energy and Environmental Design™

7 Building Performance & Education Goals





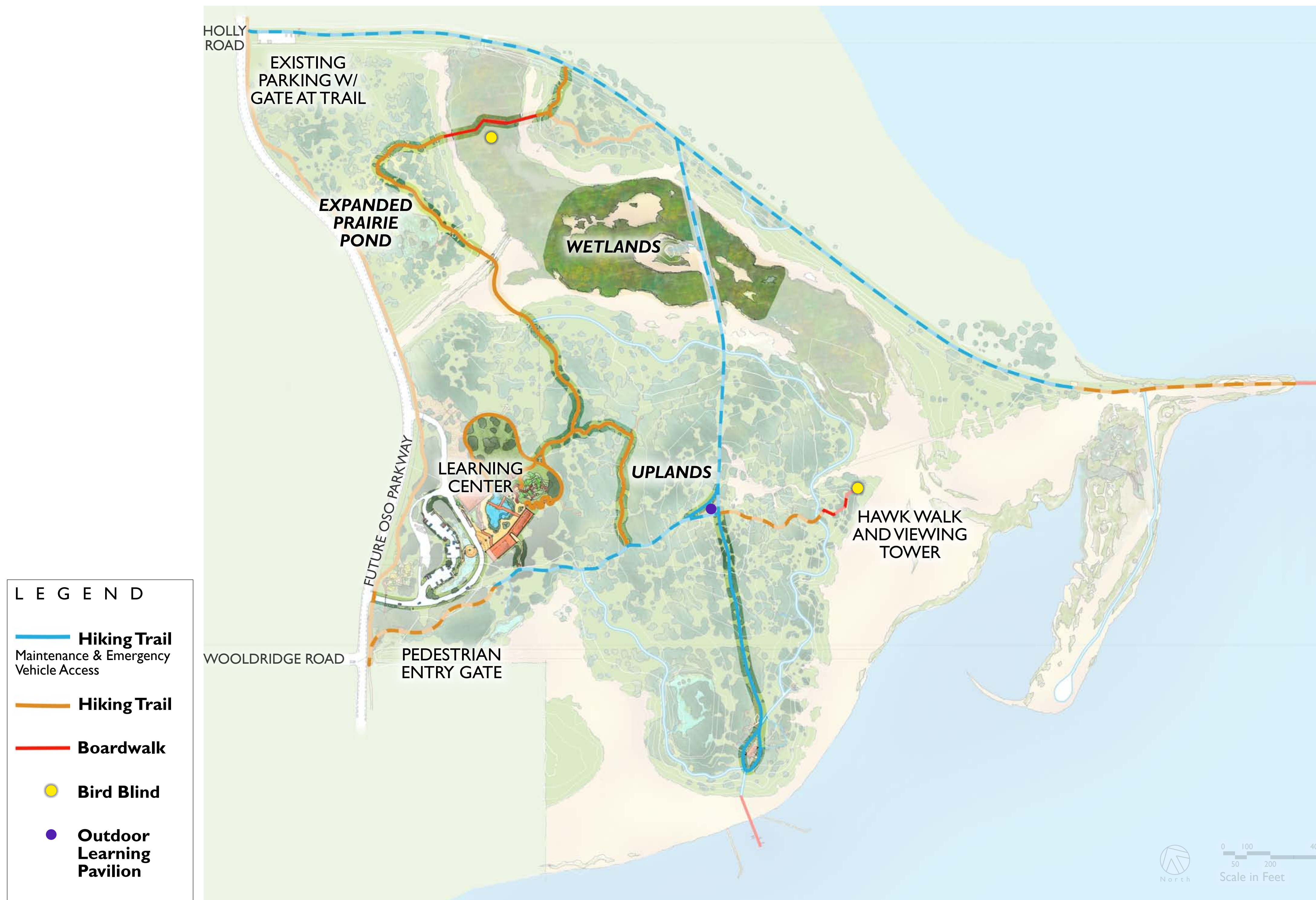
Included in Phase I are the following.

- Trails
- Hawk Walk
- Outdoor Classroom w/ Shade Structure, Picnic Tables, and Interpretive Signage



8 Implementation





Included in Phase 2 are the following.

- Trails
- Interpretive Center
- Lab Building
- Entry Monument w/ Sandscape
- Bus Drop-Off and Parking
- Car Parking
- Demonstration Pond
- Children's Garden Experience
- Trailhead
- Camp Sites
- Amphitheater
- Wetland Restoration

Future phases include the following.

- Event Center
- Additional Parking
- Campground Restroom and Overlook
- Outdoor Classrooms
- Additional Trails
- Fishing Pier Enhancement
- Outdoor Exhibit Hall and Gardens



8 Implementation

Oso Bay Wetlands Preserve and Learning Center





City of
Corpus
Christi

**PARKS & RECREATION
DEPARTMENT**

PO Box 9277
Corpus Christi
Texas 78469-9277
Phone 361-826-3460
Fax 361-880-3864
www.cctexas.com
www.ccparkandrec.com

Live. Learn. Play!

Attachment D

December 31, 2013

Martha Zottarrelli
General Land Office
Coastal Impact Assistance Program



Education Advisory Committee Members:

- Alicia Needham - Flour Bluff ISD
- Jake Herring - Coastal Bend Bay and Estuaries Program
- Michelle Horine - Nature Tourism
- Larry Joe Johnston - Coastal Bend Bay and Estuaries Program
- Stacie Talbert - City of Corpus Christi Parks and Recreation
- Barbara Austin - RVI Planning
- Derek Herzog - City of Corpus Christi Parks and Recreation



SUMMARY

AUGUST 7, 2012

POTENTIAL ELEMENT	DETAILS/DESCRIPTION	CITY'S ROLE	GAP(S)
Educational Exhibits – both Indoor and Outdoor	Topics: Wetlands? Coastal Erosion? Non-point Source Pollution? Static or Interactive?	-Funding for the facility/exhibits -Final approval of exhibits to ensure continuity with overall park design and purpose	• Content of displays • Linking content to Texas public school system curriculum • Creating the interpretive text and graphics
POTENTIAL PARTNERS/RESOURCES	POTENTIAL ROLE(S) FOR PARTNERS	STEPS NEEDED TO ASSESS FEASIBILITY	RECOMMENDATIONS FROM STAKEHOLDER WORKSHOP
• National Association of Interpretation • Assoc. of Nature Centers of America • HARTE Institute • Project WILD, Project WET • Texas State Aquarium Keepers of the Coast Club • Project Learning Tree	• Funding • Undergraduate students could conduct research, lead tours and programs, etc. • Partners could create curriculum training for staff and volunteers	-Get certified to be a TEA facility -Have design consultants consider size and capacities of grades 3-5 when designing layout of spaces -City staff should visit successful models around TX (and U.S.): World Birding Centers at South Padre Island and McAllen, Valley Nature Center in Weslaco, Rockport Bay Education Center, Bunker Sands in Wylie (near Dallas)	-Focus on interactive exhibits -Focus on grades 3-5 -Focus on alternative energies, especially wind (unique theme) -Demonstrate a windmill with a water pump into flowing water -Demonstrate a solar panel (at an accessible height) -Demonstrate a water aerator -Incorporate sounds into the indoor exhibits (but not outdoor exhibits) -Show tracks and other evidence of wildlife -Interpret habitats/ecosystems -Tie together all nature resources -Interpret water quality -Demonstrate watersheds (interactive model) -Provide some programs for Jr High level (age which might consider future careers in conservation)

POTENTIAL ELEMENT	DETAILS/DESCRIPTION	CITY'S ROLE	GAP(S)
Outdoor Recreation	Potential Programs: -Kayaking (no biking or running) -Hiking -Team-building -Low Challenge Course -Geocaching -Fishing Programs -After-school and summer camps	Provide outdoor recreation programs to children and adults in a safe natural environment.	Putting a curriculum together to align with the state testing
POTENTIAL PARTNERS/RESOURCES	POTENTIAL ROLE(S) FOR PARTNERS	STEPS NEEDED TO ASSESS FEASIBILITY	RECOMMENDATIONS FROM STAKEHOLDER WORKSHOP
- Youth Odyssey - University Outdoor Adventure Program - Camp Aransas in Rockport - Sierra Club - Dot Adkins Middle School - Coastal Bend Bays and Estuaries Program - Gulf of Mexico Foundation - Texas Children in Nature	Use students for some of the work ("Service Learning")		-Use Recreation programming as a source of revenue -Offer facility rentals -Offer technical trainings

POTENTIAL ELEMENT	DETAILS/DESCRIPTION	CITY'S ROLE	GAP(S)
Habitat Restoration	The Learning Center and Wetland Preserve will design ways to provide habitat restoration to areas that are damaged or lacking in suitable habitat for the area.	-Find a good sustainable program that will enable habitat restoration to occur while allowing visitors into the area without disturbing the progress	• An overall restoration plan • A species list/habitat inventory • A plan for maintenance and monitoring
POTENTIAL PARTNERS/RESOURCES	POTENTIAL ROLE(S) FOR PARTNERS	STEPS NEEDED TO ASSESS FEASIBILITY	RECOMMENDATIONS FROM STAKEHOLDER WORKSHOP
• Texas A&M University – Corpus Christi • US Fish and Wildlife Service • County Extension Center • 4H Programs • City Water and Wastewater Dept. • High School students	-Partners could have easements to use site for experimental restoration	-Develop restoration plan -Get cost estimates	

POTENTIAL ELEMENT	DETAILS/DESCRIPTION	CITY'S ROLE	GAP(S)
Wildlife and Environment Viewing Areas	The trails and park will feature wildlife and environment viewing areas that give visitors, students and participants a specific area to catch a glimpse of wildlife and observe the convergence of South Texas Brush and Coastal Prairie and Marshes ecosystems.	-Funding for the park and viewing areas -Final approval of exhibits to ensure continuity with overall park design and purpose	• Content of displays • Linking content to Texas public school system curriculum
POTENTIAL PARTNERS/RESOURCES	POTENTIAL ROLE(S) FOR PARTNERS	STEPS NEEDED TO ASSESS FEASIBILITY	RECOMMENDATIONS FROM STAKEHOLDER WORKSHOP
• Individual birders to volunteer • 2 Audubon Clubs • Master Naturalists • Master Gardeners • South Texas Botanical Gardens • Convention and Visitors Bureau • Coastal Bend Bays and Estuaries Program • World Birding Center		-Do several birdcounts during different seasons -Utilize eBird and Birdspot	-Call it the "Osprey Trail" - Have some viewing areas for birds others for general ecosystem viewing -Include interpretive signage at viewing areas -Provide viewing of rainwater collection -Provide Barn Swallow housing and bat houses -Provide butterfly gardens and hummingbird feeders -Provide a Kiosk where spotted species can be documented (cataloged in database) -Create areas where various bird species will congregate -Identify plants to attract certain species -Incorporate water sources for reptiles and mammals -Utilize a night camera to capture images of wildlife to then show during the day

POTENTIAL ELEMENT	DETAILS/DESCRIPTION	CITY'S ROLE	GAP(S)
Technology Features	Use of technology and advances in electronics as part of interpretive programs	-Willingness to incorporate into plans -Willingness to seek funding and sponsorships	•
POTENTIAL PARTNERS/RESOURCES	POTENTIAL ROLE(S) FOR PARTNERS	STEPS NEEDED TO ASSESS FEASIBILITY	RECOMMENDATIONS FROM STAKEHOLDER WORKSHOP
• There are grant opportunities for nature-based applications • Convention & Visitors Bureau funding • TX Education Service Center – Region II • TX Outdoor Education Assoc. – Education Podcasts • TEA house podcasts • TCEA Tech. Conference			-QR codes on signs -Make static signs interactive -Get on CVB trail map -Create an app for your park -Ebird kiosk indoors -Corpus Christi mobile app -Smart Board – for lab -Touch panel displays -Weather station -Webcam -Distance learning (classroom cameras, labs) -Post youtube videos -Look at what's been done at other nature centers

Oso Bay Wetlands Preserve Public Education and Outreach

We understand that public education and outreach involves using effective programs, guided by a detailed outreach strategy, to engage the public's interest in habitat restoration. A key factor we will consider when developing our strategy is that the public has varying levels of background knowledge on habitat restoration and their role in habitat management. Hence, Oso Bay Wetlands Preserve (OBWP) will aim to take a multi-pronged approach to outreach efforts by:

- Generating basic awareness of habitat restoration and importance
- Educating at a more sophisticated level using more substantive content and curriculum
- Building on existing recognition of environmental issues to prompt behavior changes that reduce destruction

The value of laying out a comprehensive outreach strategy is that we will be able to use it to focus the overall public education and outreach portion of our program, allowing us to recognize opportunities to leverage other programs or partner with community organizations, and, invest in new program efforts for maximum effect.

I. Public Education & Outreach Strategy: Operating Plan

Goals

1. Provide on-site interpretation of on-going restoration efforts to public
2. Increase public awareness of restoration and monitoring efforts
3. Involve public in "hands-on" restoration efforts
4. Educate public on local resource protection and how they can help

Target Audiences

- Local Community groups
- Corpus Christi, West Oso, Calallen, Tuloso Midway, Flour Bluff ISD's (Grades K-8)
- Boys Scouts/ Girls Scouts
- 4-H Groups

Messages

Communication is a two-way street. We understand that it is very important to pitch a message that our targeted audiences will respond to. We plan to inform each audience how they will benefit by habitat restoration and on-going management of the site. We will address specific action steps that each audience should take to prevent pollution and habitat destruction. Additionally, we plan to give audience incentives to reduce polluting/damaging behaviors (ex.: recreation opportunities, improved quality of life, etc.).

Format & Distribution

We will consider each receiving audience to help determine message formats and plan the distribution. Our strategy will employ a variety of complementary formats to help reach diverse audiences. Examples include interpretive signage, "hands-on" learning activities and workshops, volunteer restoration days, and several TEKS-aligned curriculum programs for school groups.

Evaluation

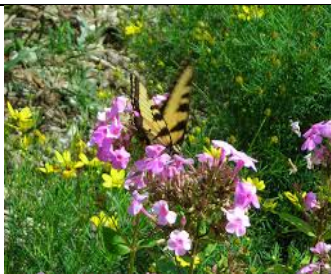
To help ensure an effective and successful outreach and education program, we will incorporate several methods of evaluation to help us see what works and what does not. Items we will consider are:

- Were times frames met?
- Number of people reached
- Pre and Post testing for educational groups
- Educator surveys
- Environmental indicators (ex.: water quality, habitat/vegetation quality)

II. Public Education & Outreach Strategy: Curriculum Development

A. Basic Wetland Education Programs

Teachers and Community Leaders will be able to bring their school or youth group to the Oso Bay Wetlands Preserve and Learning Center to participate in a variety of fun, educational, and unique field trips for students of all ages. Our programs are TEKS correlated and grade-level appropriate.

	Investigating Insects (Pre-k to 1st Grade) Students will jump into the amazing world of insects in this program, where they will learn about local insect life cycles, adaptations, habitat and more. Program will include an outdoor walk where students will use their observations to hunt for insects throughout the Preserve. May include a craft, game or puppet show depending on age and size of group.
	Beginning Birder (4th to 12th Grade) Let the OBWP teach your class about what is so special about the Coastal Bend when it comes to birds! Students will learn to use tools such as binoculars, scopes, and field guides as they tour the park learning how to identify the numerous diverse species at our site. This program is a great way to get your students outside and is sure to open their eyes to the unique role of South Texas in bird migration.
	Power of Pollination! (2nd to 5th Grade) Did you know that pollinators are responsible for 1 out of every 3rd bite of food we eat? In this lesson children learn about the connection between pollinators like bees and butterflies and how plants grow. Students are introduced to several different pollinators, from bees to bats. Lesson may include use of magnifying glass, microscope and data collection sheets. A fun way to learn about the importance of pollinators!

	Wetland Exploration (4th to 6th grade) This interactive, science-based hands-on program will introduce students to a world they have never encountered. Water scorpions, odonates, and pond critters galore, your kids will get their hands wet and their feet dirty exploring wetlands. Some of the activities include dip-netting, water testing, and/or microscopes.
	Natural History Tours (5th to 12th grade) During this program students will learn the use of field equipment, such as binoculars, field guides and check lists. On a guided tour of our grounds, students will learn about native plants, wildlife and the history of our site. A great introduction to the diversity found in our native habitat oasis. A short introductory lesson of field safety is included.
	Extended OBWP Experience This is a two hour long program for those interested in being at our site for a more in depth trip. Easily tailored to many grades, this can include a puppet show, walk, and two other relevant themed activities. We are always willing to incorporate subjects that are being taught in the classroom into field trips with adequate notice.

Other topics in development:

Fresh water pond biodiversity	Studying the diversity of fresh water ponds
Bay and estuarine biodiversity	Studying the diversity of saltwater bays and marshes
Dip and seine netting biodiversity	Discovering what lurks on the bottom of ponds and bays
Tracking and track recognition	Studying animal tracks, who they belong to, and where are they going
B Birds, nests, and all feathers!	Studying the birds of the OBWP
Snakes, lizards, and scaly critters	Studying the reptiles of the OBWP
Insects...EVERYWHERE!	Studying the insects of the OBWP
The importance of plants	Studying the diversity of plants of the OBWP
Plant adaptation	Studying the plant adaptations to the OBWP
Edible plants of South Texas	What plants are good to eat on the OBWP
The web of life!	Studying the interactions of organisms at the OBWP
Butterflies and other winged insects!	Looking, identifying, and studying the winged insects at the OBWP
Frogs and life on the pond!	Identifying the life stages and life history of frogs at the OBWP
Honey we shrank the outdoors!	Looking at the microworld from the preserve
Parasites? Here?	Studying the parasites that are found around the OBWP
Junior anglers!	Teaching fisher-kids the basics of fishing!
Camping 101	Teaching nature enthusiasts the key things regarding camping
Survival on the Oso: fire 101	What does it take to survive at the OBWP and South Texas?
Dangers of the outdoors!	Bees? Snakes? The Sun? What to look out for while on the outdoors

B. Custom & Specialized Education Programs

Some teachers will have certain topics that they would like our staff to cover. They can speak to our Program Coordinator about customizing a special TEKS-aligned program tailored to their group.

C. General Public

The Oso Bay Wetlands Preserve (OBWP) has the physical elements to provide a wide range of educational activities. With a variety of habitats, organisms, and microclimates we will offer a range of activities for all ages. Here is a guideline of the activities:

Educational / Nature oriented activities:

- Guided nature hikes
- Guided night hikes (OwlProwl)
- Endemic animal presentations
 - i.e. Birds of the OBWP, snakes of the OBWP, etc.
- Endemic plants presentations
 - i.e. Edible plants of OBWP, adaptations to the coastal bend climate, etc.
- Survival/outdoors talk series
 - i.e. fire-starting 101, survival plant identification, etc.
- Trip and travel programs
- Programs provided by our partners hosted on site
 - Texas wildlife certification seminar
- Summer camps
 - Including extensive outdoor oriented curriculum
- Graduate/undergraduate classes and Research hosted on OBWP

III: Public Education and Outreach Strategy: Getting the word out

The Oso Bay Wetlands Preserve (OBWP) will use online advertising as the main form of outreach for the first year of operations. This method includes our Facebook website, which has already been linked to the City of Corpus Christi website and Facebook feed and already has a vast online audience.

Another crucial part of our short and long term outreach strategy is the use of our partners as a method for outreach. The OBWP has already participated in a variety of events held by our partners like. A good example is the Texas Nature Challenge opening ceremonies, in which the OBWP had a presence and a great participation. We are scheduled to participate on the closing ceremonies and other activities by our partners.

Once the construction of the laboratory building is finished, our outreach strategy will rely more heavily in direct advertising to our partners and target audience. We will advertise directly to school district and places of interest to promote our summer camp program and educational curriculum.