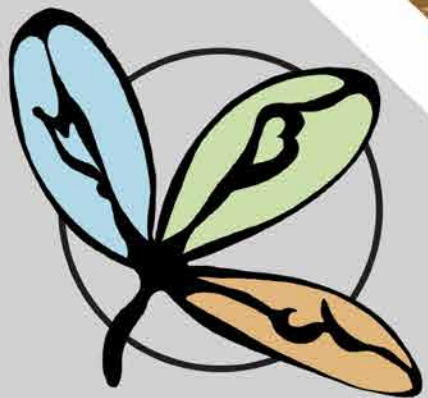


Swanton Pacific Ranch Adapts

LA 403 | Natural Environments Focus Studio

Bradley Atnip, Maya Amyx, Jackie Tang
The Trifoliate Team



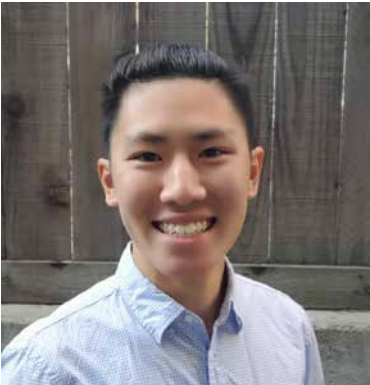
The Team



Bradley Atnip (he/him)
I'm a third-year landscape architecture student at Cal Poly SLO, while also minoring in 2D studio art. My main specialty is the incorporation of hand graphics into various designs. In my downtime, I love to run, draw, and play volleyballl.



Maya Amyx (she/her)
I am pursuing landscape architecture and minoring in Sustainable Environments and Habitat Restoration, in order to design green and equitable projects. Outside of classes, I enjoy hiking, sketching, and reading fantasy novels.



Jackie Tang (he/him)
I love to explore new ways of designing better landscapes, for future generations. Outside of the classroom, I enjoy biking, running, swimming, and painting.

Grey Hayes, PhD
Education and Research Manager
Cal Poly Swanton Pacific Ranch

Kristen Kittleson
Fishery Resource Planner
County of Santa Cruz Health Services Agency

Daniel Nylen
Watershed Restoration Program Manager
Resource Conservation District of Santa Cruz County

Miran Jung Day
Associate Professor, Landscape Architecture Department
California Polytechnic San Luis Obispo



Table of Contents

ABSTRACT 1

CH 1: CONTEXT 3

Meet SPR 4

Natural Resources on Site 6

Plans for the Future 8

Why were these sites chosen? 9

CH 2: SITE ANALYSIS 11

Exploring the Main Office 13

Fire Resilience 14

Water Circulation 14

AutoCAD Documents of Main Office Structures 15

Main Office Focal Images and Proposed Notes 16

Fire Buffer and Rain Garden Diagram. 17

Estuary Inventory. 19

Estuary Analysis 19

Sea Level Rise. 20

Managed Retreat 22

Exploring Proposed Housing 25

CH 3: DESIGN DEVELOPMENT 29

Mission Statement 30

Setting our Programs 31

Getting Around Swanton’s Core 32

Plant and Materials Pallette 33

CH 4.1: The Seeds 35

The Seeds Design Development. 36

Conceptual Diagrams 37

Plan of the Seeds. 38

CH 4.2: THE LAB 41

The Lab Design Development 42

Plan of the Lab 44

Estuary Sections 46

CH 4.1: THE HEARTH 49

The Hearth Design Development 50

The Hearth Plan 52

Sections 53

Conclusion 55

Resources 56





SWANTON PACIFIC
COTTONWOOD AVENUE
RANCH
CAL POLY STATE UNIVERSITY



ABSTRACT

Welcome to “Swanton Pacific Ranch Adapts.” This project comes out of California Polytechnic State University, San Luis Obispo’s (Cal Poly SLO’s) department of Landscape Architecture. Swanton Pacific Ranch (SPR) is an educational resource owned by Cal Poly SLO. This land has some of the highest relative biodiversity in California (Scaramozzino), and it has been previously damaged by the CZU Lightning Complex Fire (in 2020) (Cal Fire). Concurrently, Cal Poly SLO’s landscape architecture department was requested by the ranch owners to revamp the location’s design.

Our group goes by Trifoliate Team, and we (Maya, Bradley, and Jackie) are proposing new areas to improve SPR’s facilities. In general, our project intends on promoting the idea of adaptation, whether this concept relates to sea level rise, fire resilience, educational change, or formation of a community. In relation to our concept, this team plans to address the site’s challenges of sea level rise, the enrichment of native habitats and species, rain water management, and fire resiliency. We want our site to sustain itself, as the earth’s climate develops.

Specifically, “The Lab” (the ranch’s estuary) focuses on designing around sea level rise and public access. This site will be the only area with public access, since it is so close to the freeway. “The Seeds” (main office) and “The Hearth” (temporary housing) both emphasize a student’s experience at SPR. The Seeds, promotes the idea of how an educational opportunity is more than just a lecture hall, with outdoor labs and conversation pits placed in the area (for more dynamic learning). Also, the site maximizes the area’s stormwater usage and fire resiliency, by incorporating rain gardens and vegetation breaks. And, The Hearth plans on building a sense of student community at SPR, with gathering and recreation spaces throughout that site. This housing location helps with visitors feel at home with SPR. Lastly, the sites plan on being connected with bike and electric vehicle paths, in order to promote a more sustainable method of transportation.





CH 1: CONTEXT

Getting to know Swanton Pacific Ranch, it's resources, and challenges.

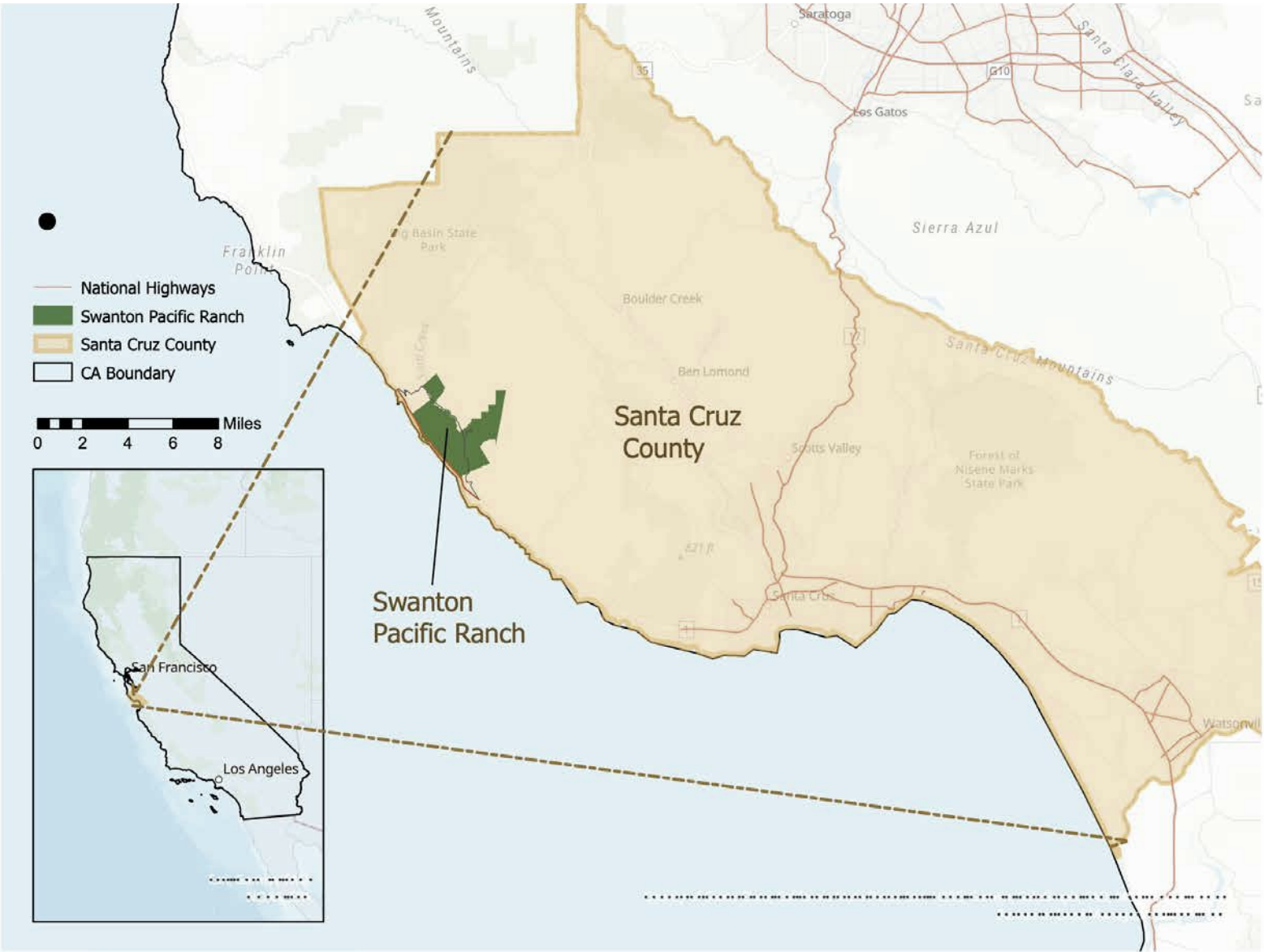
Meet SPR
Resources on the Site
Challenges at Swanton
Plans for the Future

Meet SPR

Swanton Pacific Ranch (SPR) is a 3,200 acre property that sits north of Santa Cruz and is managed by California Polytechnic San Luis Obispo. The ranch provides hands-on opportunities to students, professors, and staff in the following industries:

- Rangeland
- Agriculture
- Forestry

SPR is owned by the Cal Poly Corporation and ran by the College of Agriculture, Food, and Environmental Sciences.



The Ranch and Regional History

SPR's inhabitants include Native Americans, Spaniards, Mexicans, as well as various European immigrants. The site has had a long history relating to Spanish colonization.

Timeline:

(5000 B.C.)

Native Americans settled in locations around Santa Cruz (identified as the Ohlone people).

(1697 A.D.)

Imperial Spain's colonization of California began (native tribes displaced).

(1856 A.D.)

After California became a state of the U.S., Ramón Rodríguez and Francisco Alviso proved the general location's claim.

(Post 1856 A.D. - 1993 A.D.)

Swanton owners begin to utilize land for capital.

(1993 A.D. - Present)

Albert Smith donates Swanton Ranch to Cal Poly, San Luis Obispo.

Page References:

Dates and bottom photos from, (Scaramozzino)

Native American picture from, (Calisphere)



Art of Ohlone Native Americans



1950s Swanton Ranch Workers



Image of Albert Smith

Natural Resources on Site

Supports the migration of the endangered Coho Salmon and Steelhead Trout

Freshwater ponds host California Red-Legged Frog and Western Pond Turtle



Scotts Creek



Redwood Forests

Ranch's most populous plant is the Monterey Pine.

Hosts 2 locally endemic manzanitas and 2 endemic clovers

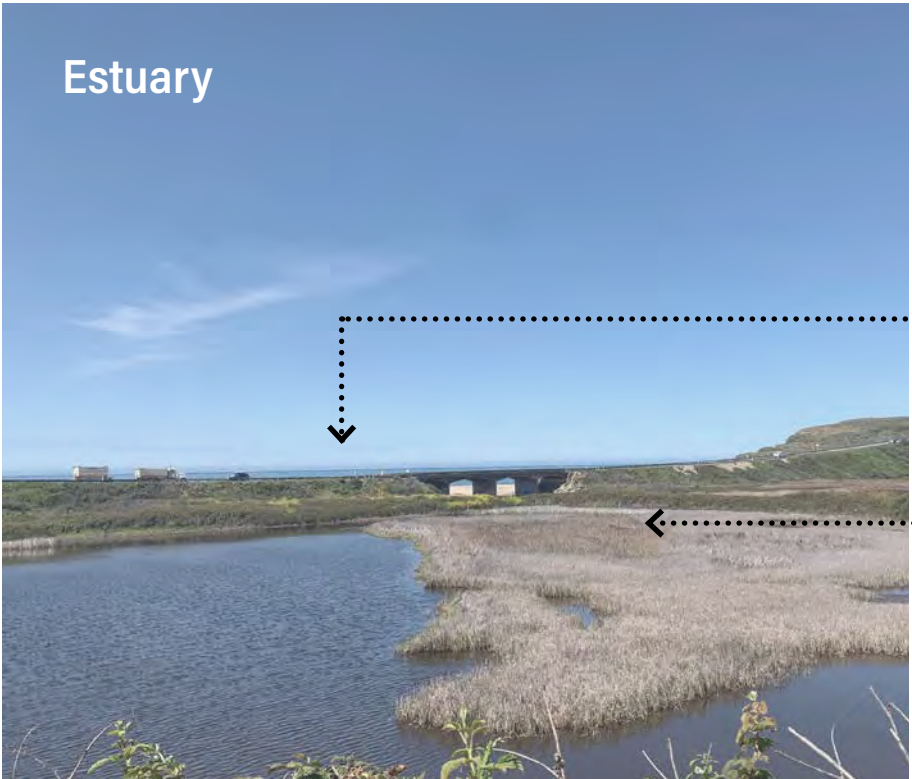
Much of Swanton's forests were damaged by the CZU fire



Native Grasslands

Supports a diverse population of native grasses

Threatened by invasive pampas grass and periwinkle, among other introduced species



Estuary

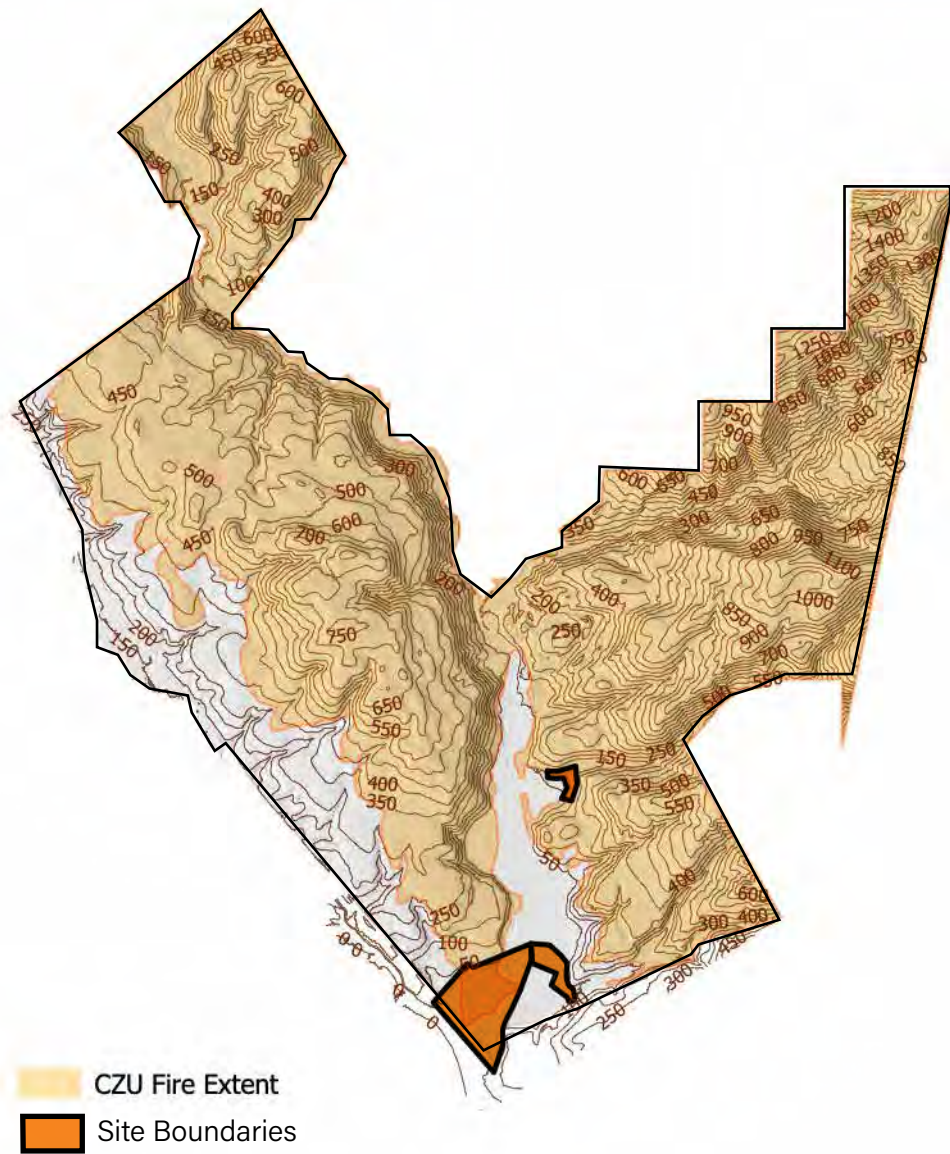
Dune habitat for Snowy Plover

Brackish habitat for Tidewater Goby

(Cal Poly, Natural Resources)
(Resource Conservation District, n.d.)

Elevation and the CZU Lightning Complex

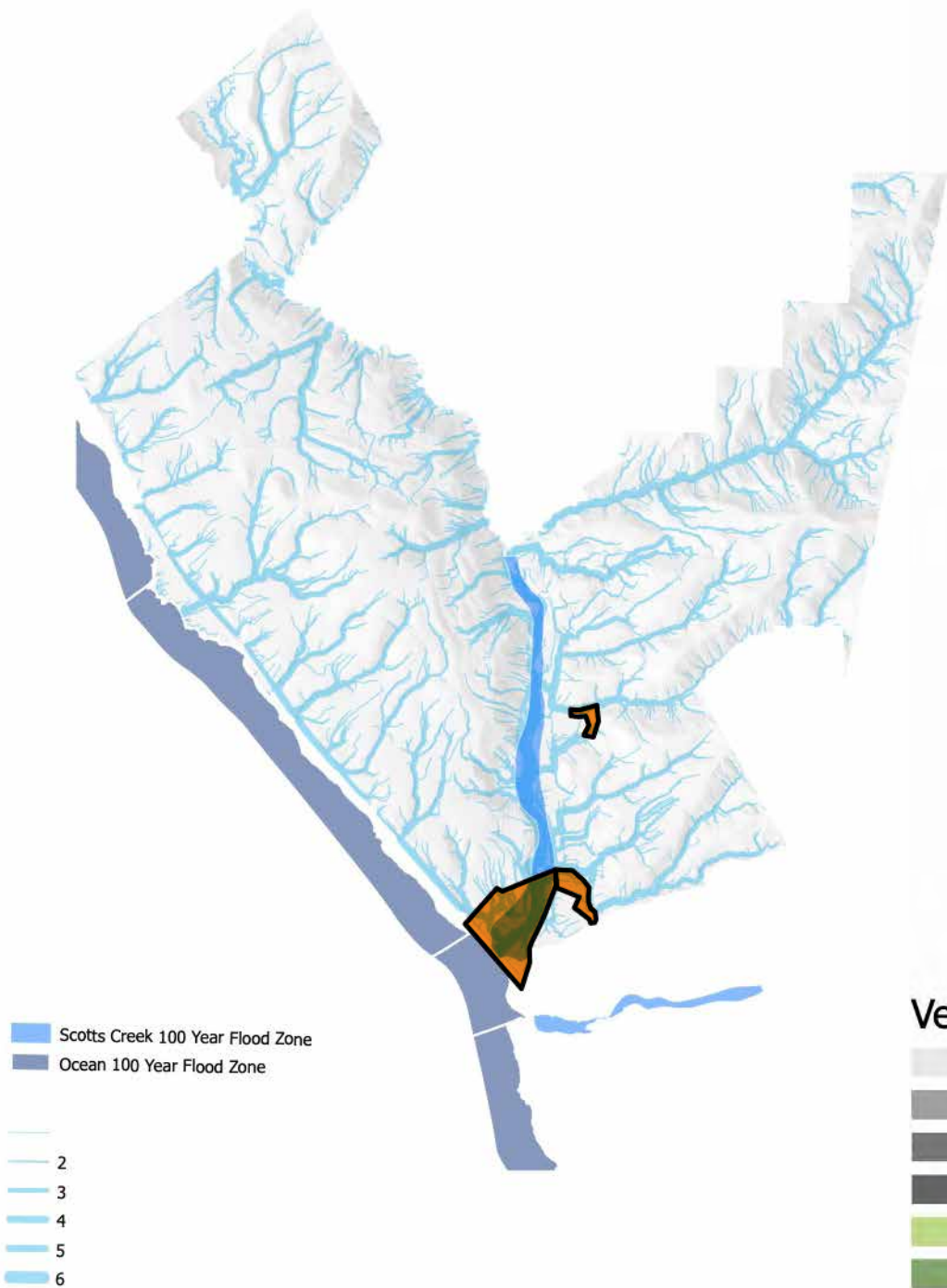
The CZU wildfire of 2020 damaged the majority of Swanton land. All proposed designs should be resilient to future fires and reestablish important plant communities to these damaged areas.



LIDAR data from (County of Santa Cruz, n.d.)
Sea Level Rise from (ESRI, n.d.)
Vegetation from (Merced County Association of Gov, n.d.)

Hydrology and Flooding

Flood data from FEMA reveals an area around Scott's Creek that could be flooded during 100 year storms. Any creek crossings should be removable or designed to survive flooding. Transportation routes will also be most adaptable if they are outside of this flood zone.



Vegetation communities

A look at the ranch's pre-CZU vegetation reveals unique plant communities that should be restored and protected. Some of these communities, such as the Monterey Pines and Redwoods, served as an inspiration during design development.



Plans for the Future

SPR's 5-Year Road Map is an official introduction to an upcoming 5-Year Plan for redeveloping SPR. Some goals include:

- Sustainable design
- More interdisciplinary opportunities
- New educational facilities
- Ecosystem restoration
- Resilient economic systems
- Carbon sequestration

"Our vision is to be the premier experiential learning center... by helping to transform student' and practitioners' ability to address the critical ecological, economic, and social challenges facing working lands across the world"

-Swanton Road Map (2021)

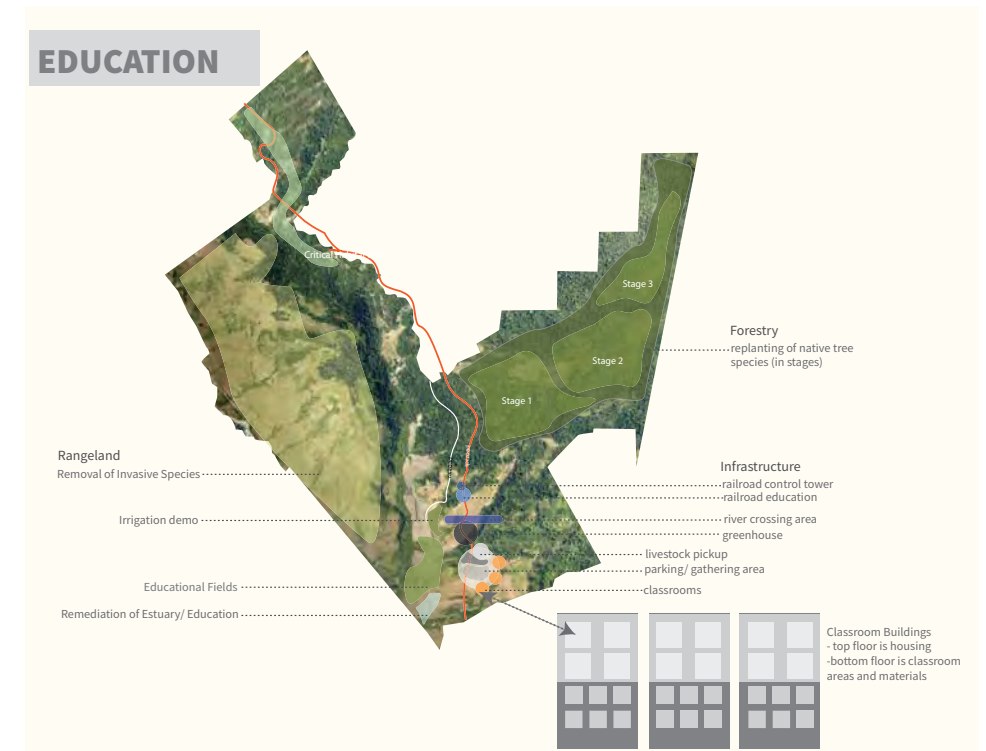


Why were these sites chosen?

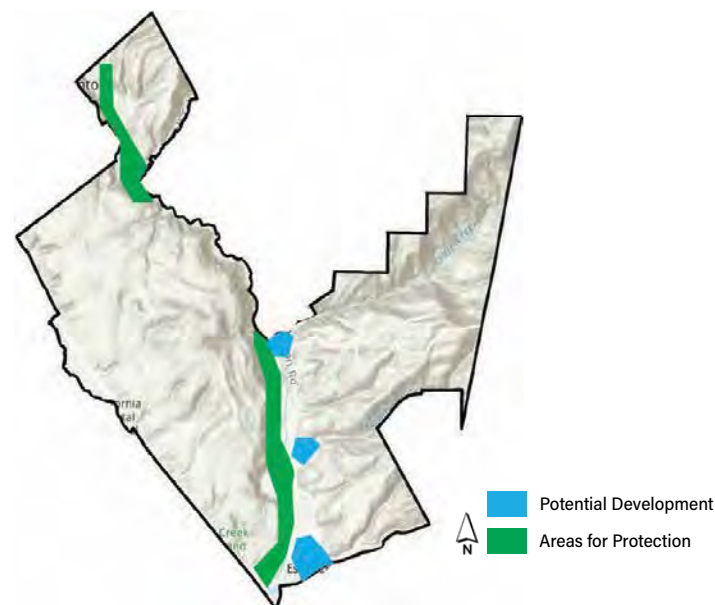
Taking a look at research of SPR from LA 438 during Spring 2021, we can see how these site were chosen. We looked into the projects of two teams, Huevosrancheros and Jollyranchers. Both teams came up with a similar approach to proritize education and ecology in their design.

(jollyranchers, 2021) (huevosrancheros, 2021)

The concept to the right, from the team Huevos Rancheros, proposes a central hub with connects to most ranch operations. This hub allows students maximum educational access, while also protecting the facilities from future fires.

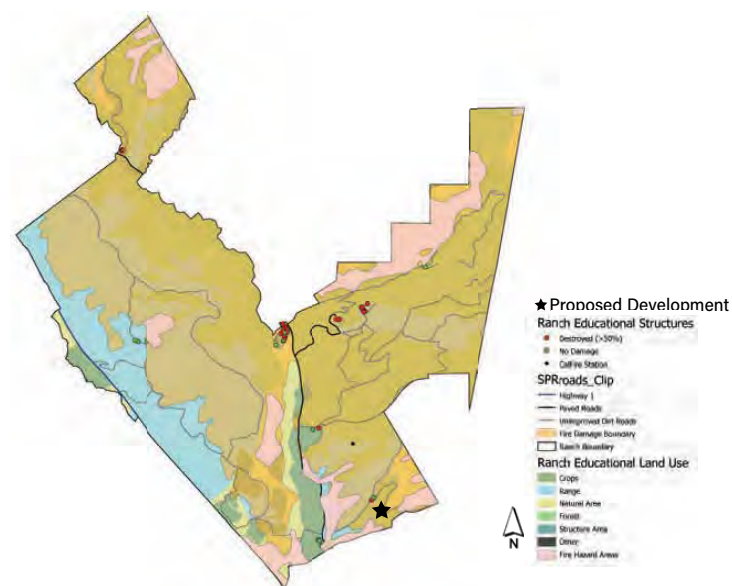


Site Development Assessment



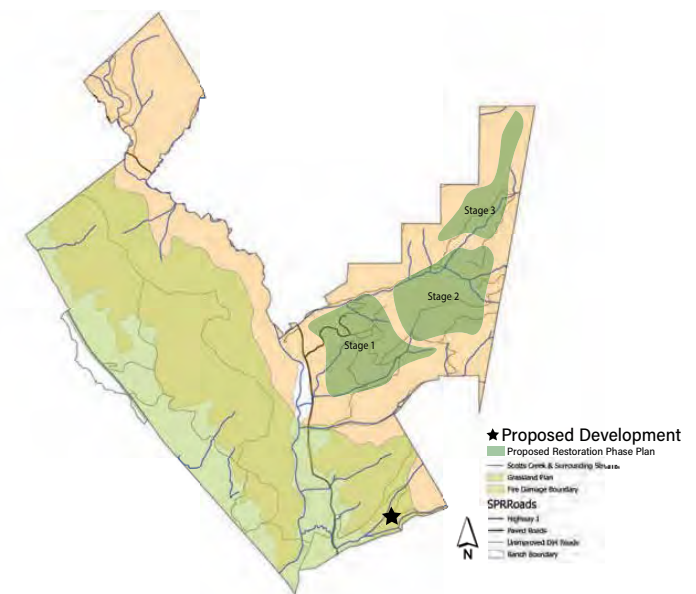
Potential areas for development were chosen based on slope, former land use, remaining structures, and proximity to infrastructure.

Centralized Development

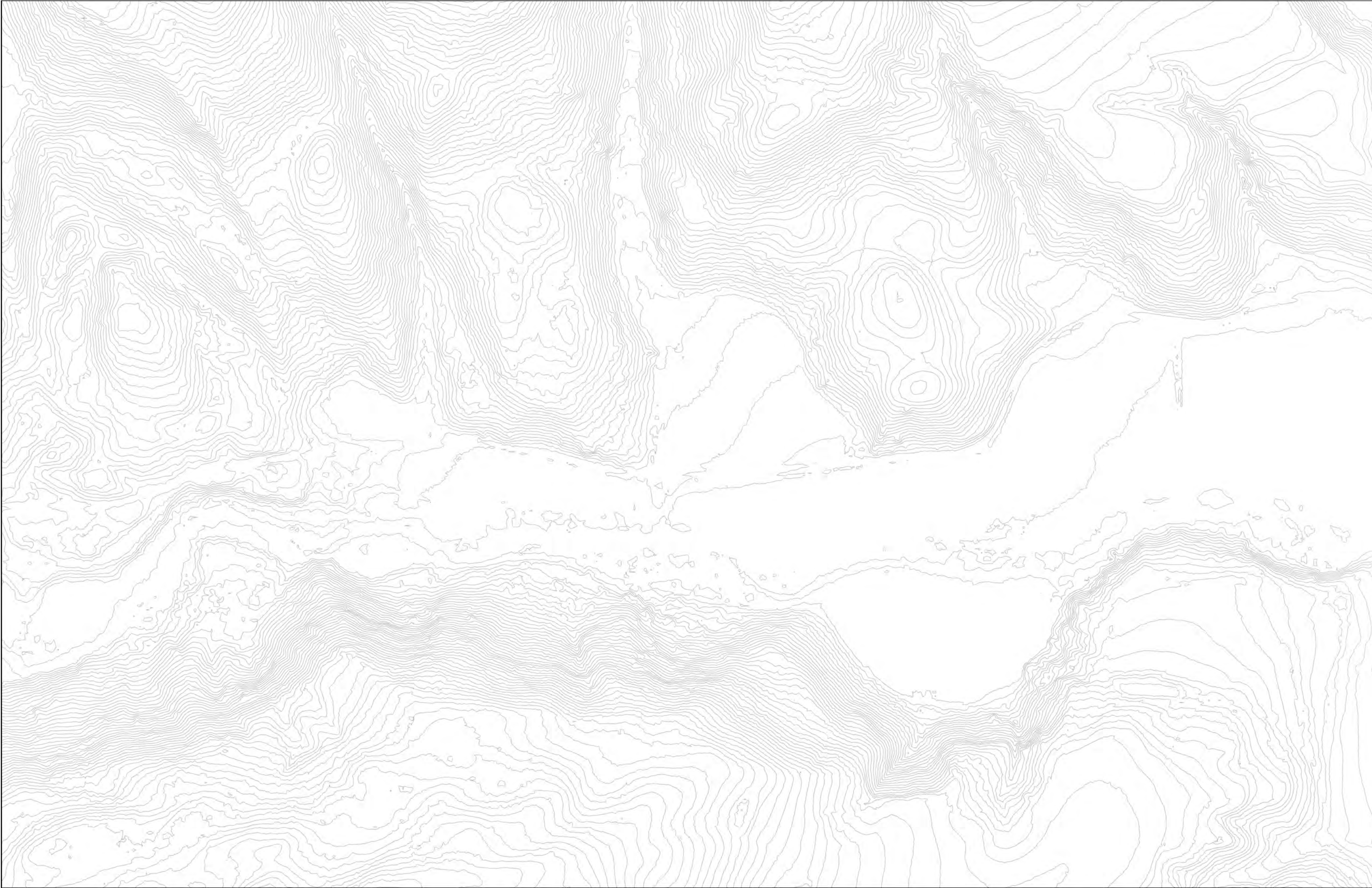


Centralized development could create more defensible space with good emergency access, while also encouraging more collaboration between majors.

Restoration Phase Plan



Reforestation near the creek and roads will protect the watershed from erosion. Also, this will limit the scope of cattle grazing along steep slopes.





CH 2: SITE ANALYSIS

Exploring our three sites along the Core of Swanton and considering their opportunities and constraints.

Main Office

- Inventory and Analysis
- Fire Resiliency
- AutoCAD Building Drafts
- Fire Regulations and Rain Garden Diagram

The Estuary

- Inventory and Analysis
- Sea Level Rise
- Plants and Materials
- Managed Retreat

Housing

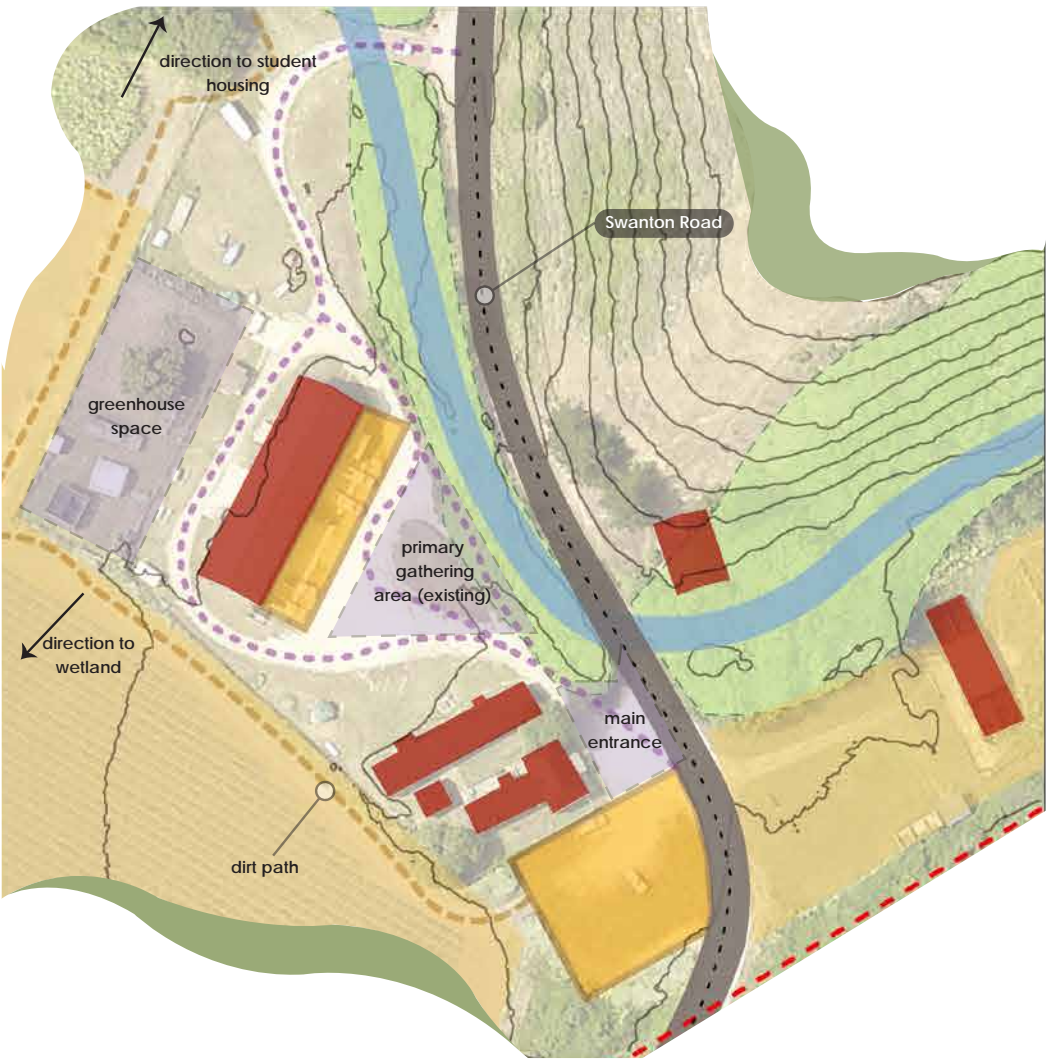
- Inventory and Analysis
- System Diagrams
- Connecting to Architecture Project





Exploring the Main Office

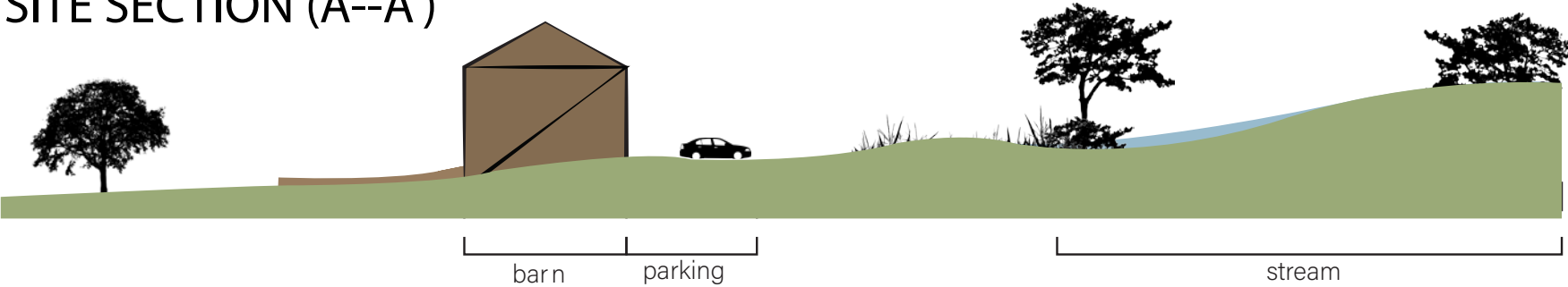
Main Office Inventory



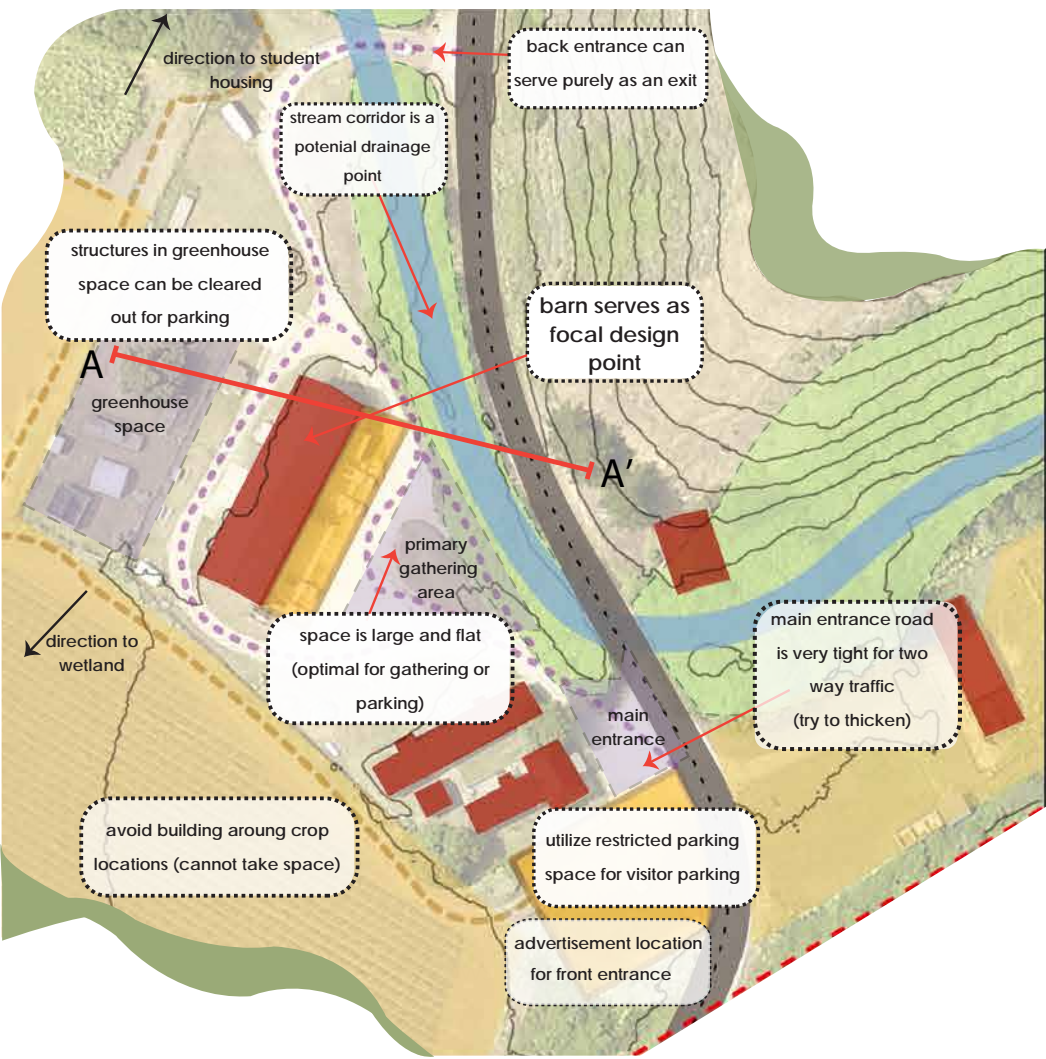
INVENTORY SUMMARY:

Prominent aspects of the general site include the main entrance along with the primary gathering area. Swanton Road is located right next to these elements, and traffic flow borders existing buildings and parking areas.

SITE SECTION (A--A')



Main Office Analysis



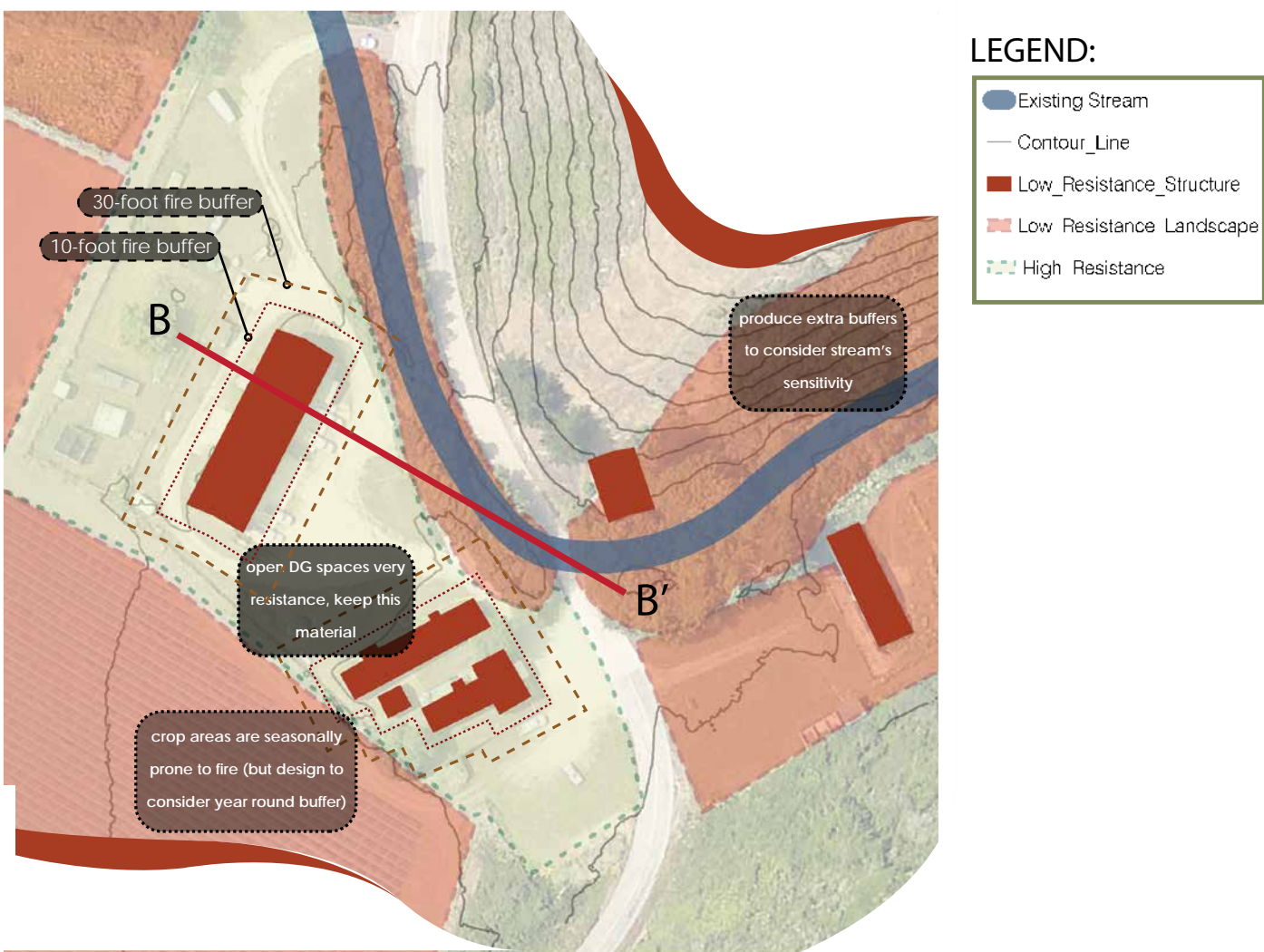
LEGEND:



ANALYSIS SUMMARY:

The site's barn can serve as a focal point for landscape elements, since the building intends to be multi-use. Also, existing trees can serve as a main reference point for establishing sustainable design (since stormwater can be funneled into that element). SPR LIDAR Data From: (County of Santa Cruz, n.d.)

Fire Resilience

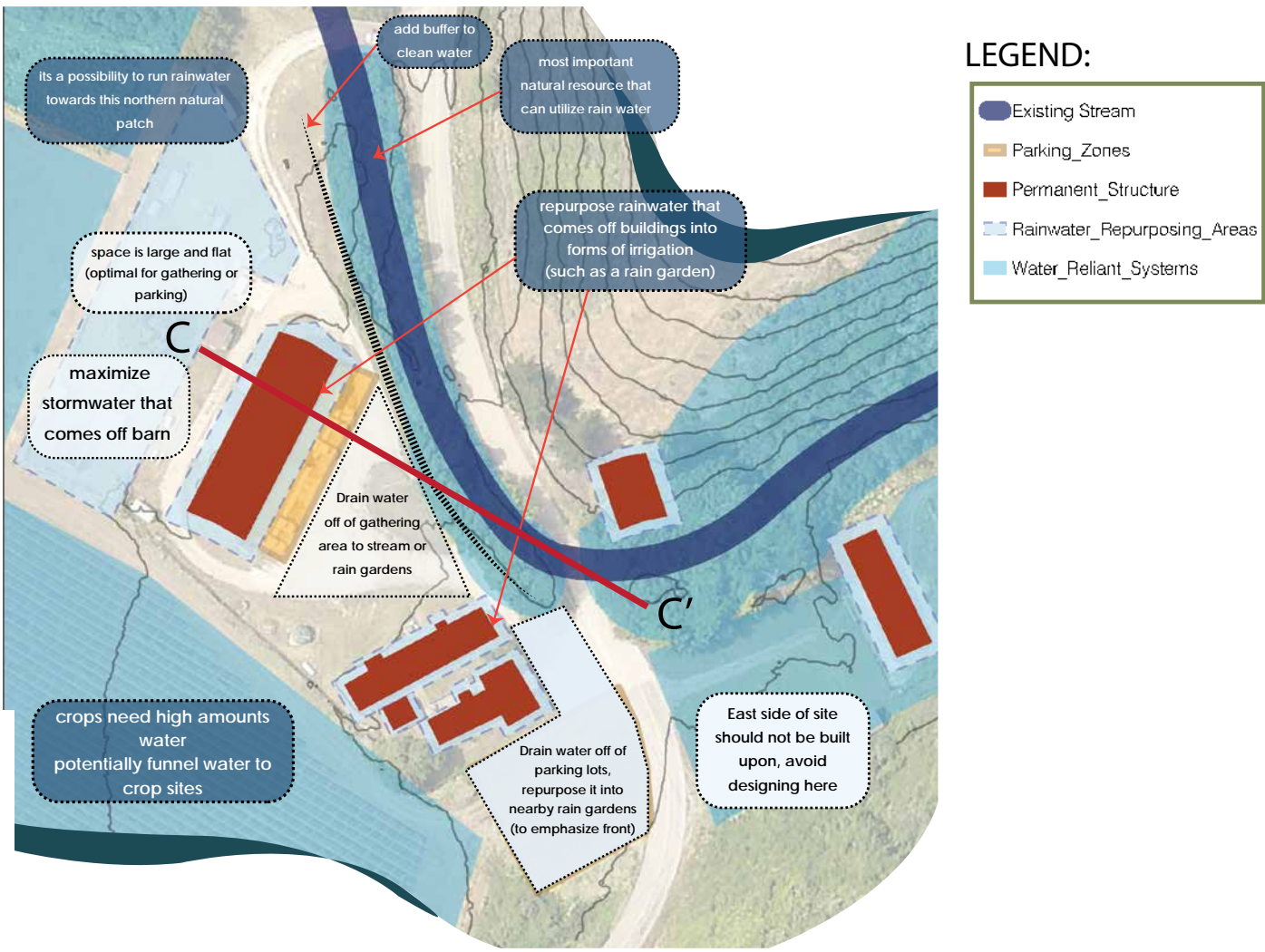


Summary

Designing around the preservation of natural materials is crucial to maintaining the natural resource the local stream. Also, mitigating vulnerability of the buildings is another focused goal of the main office. Since the material of the buildings can change, there is potential to changing the material of the structures to a fire-resistant substance. Lastly, we plan on designing around the fire buffers, even if it would seem like a limitation

SPR LIDAR Data From: (County of Santa Cruz, n.d.)

Water Circulation

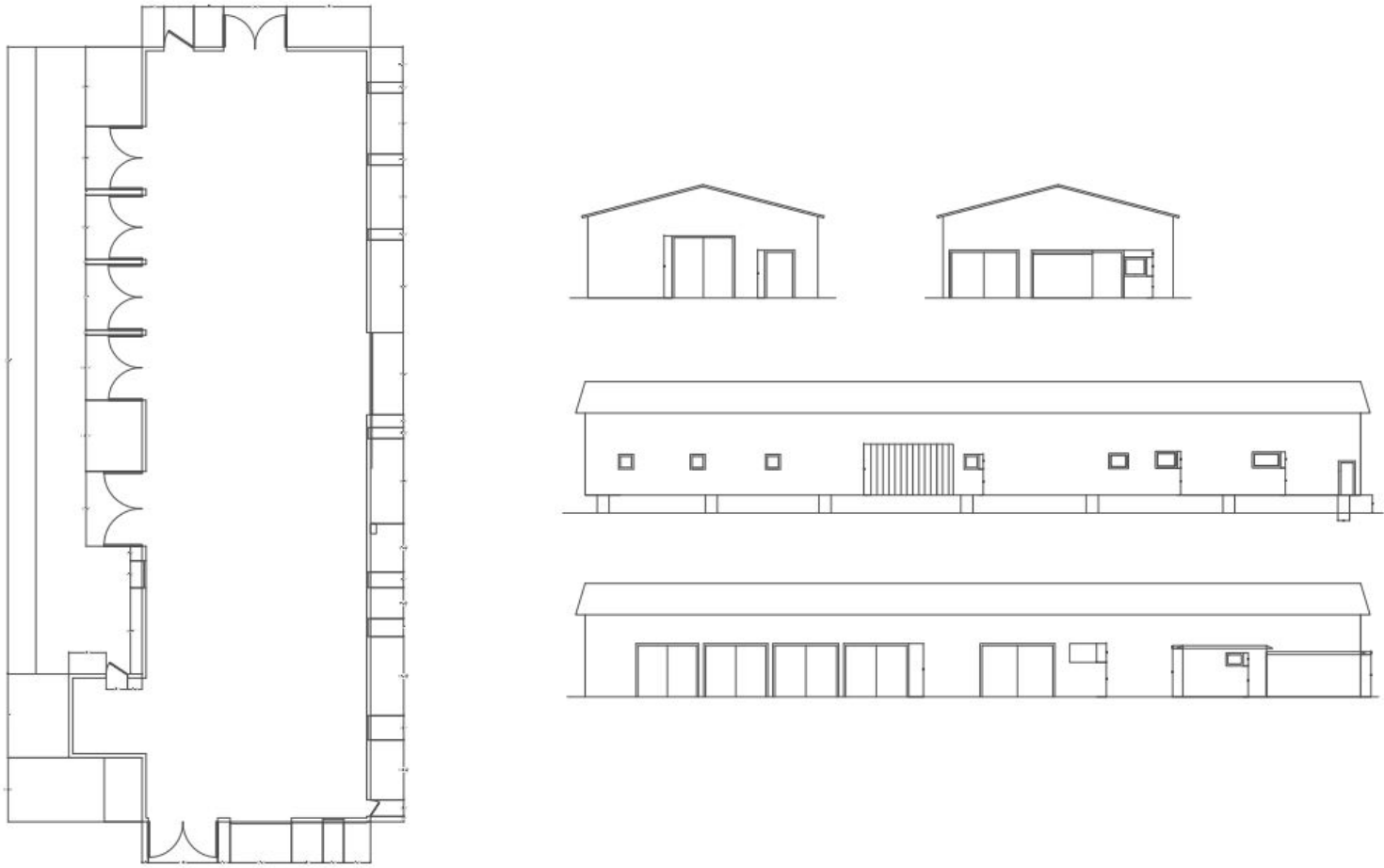


Summary

Stormwater usage needs to be maximized. The Santa Cruz rain should be directed to local areas in need of water, but rain gardens can also be used to give purpose to water that runs off buildings.

AutoCAD Documents of Main Office Structures

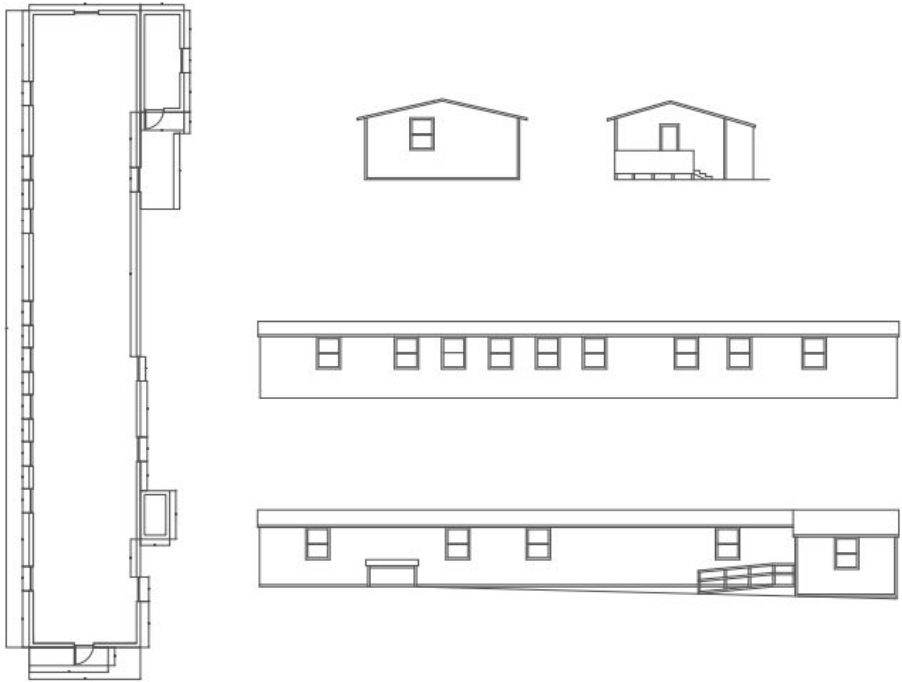
Not to scale



*BARN ELEVATION AND
PLAN VIEW*



*DORMS ELEVATION AND
PLAN VIEW*



*MAIN OFFICE ELEVATION AND
PLAN VIEW*

Main Office Focal Images and Proposed Notes



Proposed to be the visitor/information center.



Will be designed around being an admin office.



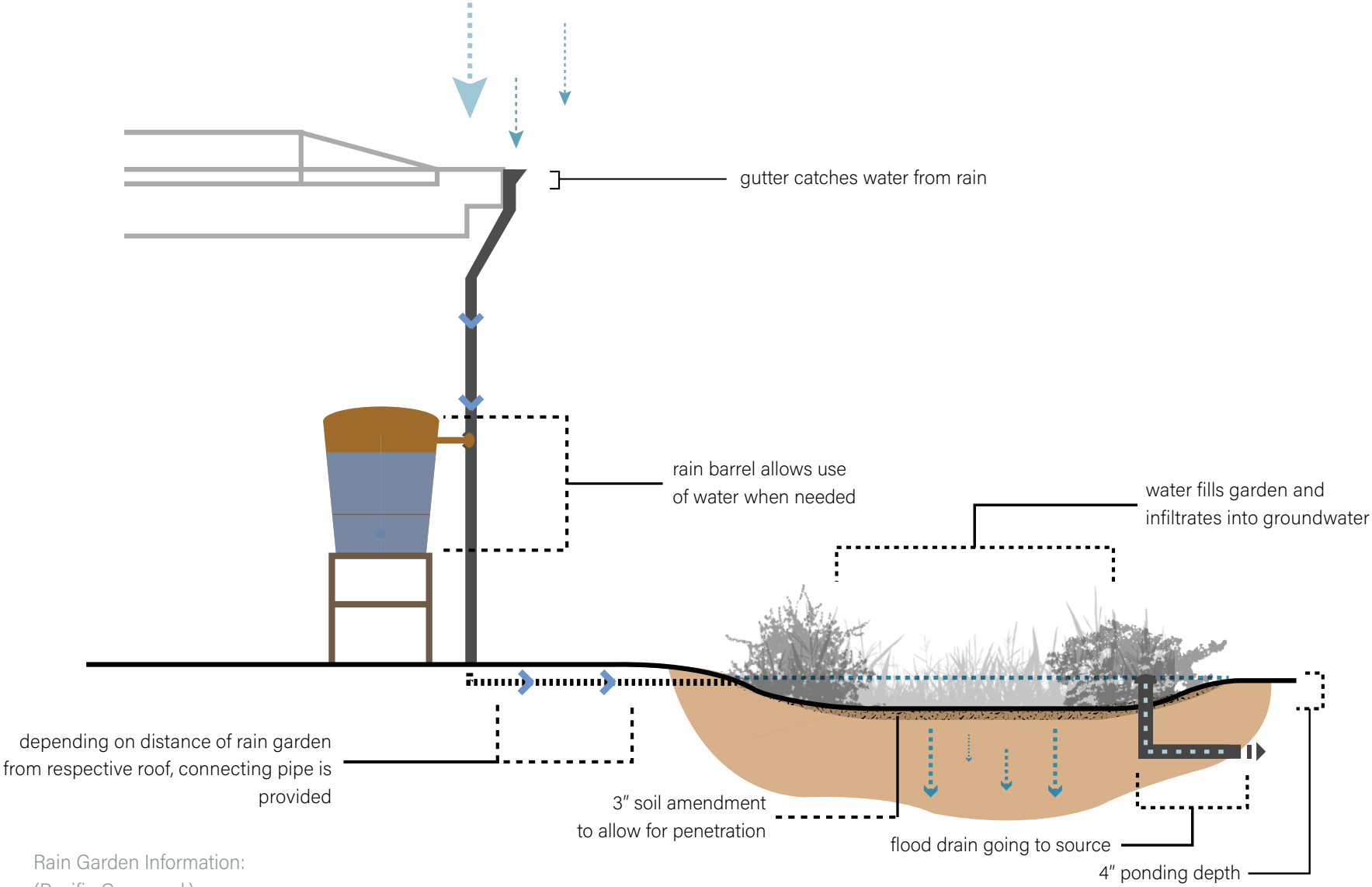
Focused on becoming a dining hall / library.



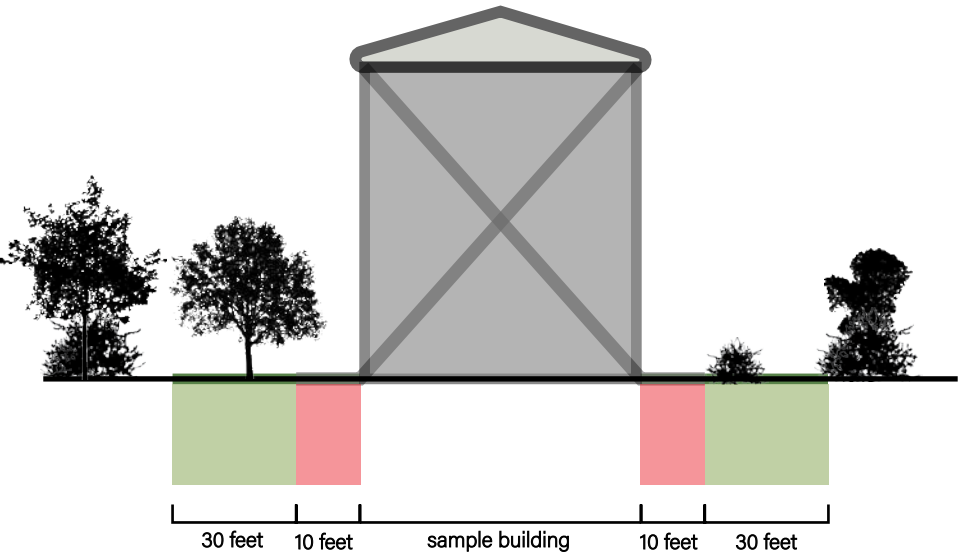
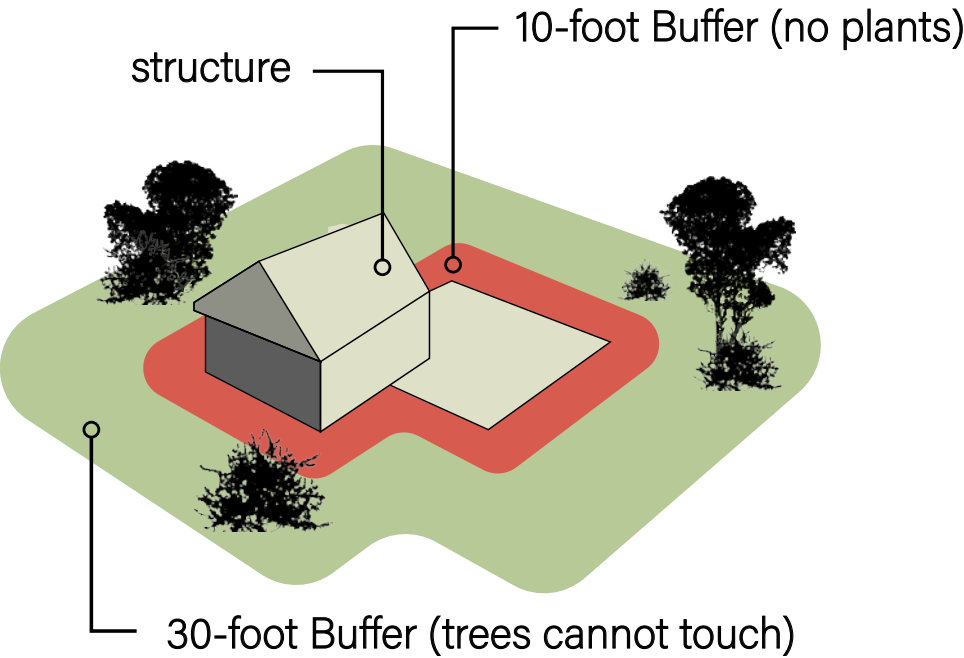
The abundance of open spaces provides an opportunity for rain garden usage and the creation of educational spaces.

Fire Buffer and Rain Garden Diagram

The rain garden is a general diagram that displays how the system of water sustainability will be maximized at the Main Office. And, the fire buffer highlights reasoning behind the distancing of plants from main structures.



Rain Garden Information:
(Pacific Grove, n.d.)
(Warren CO., n.d.)

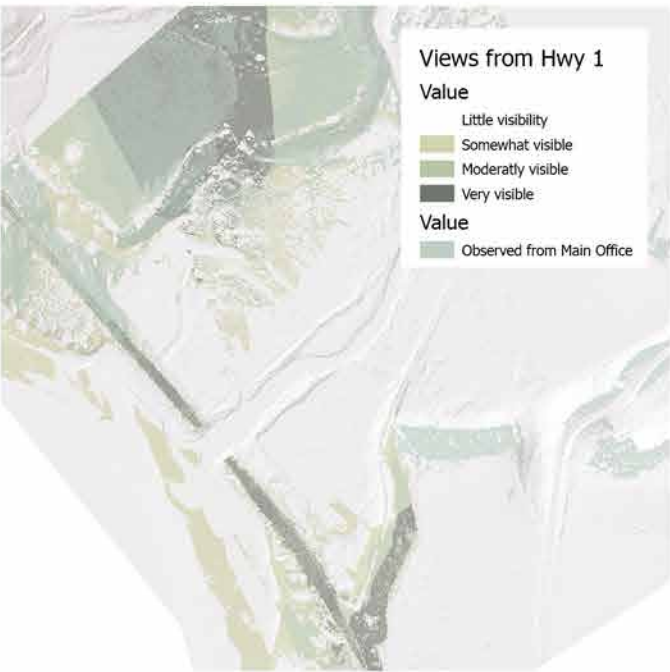
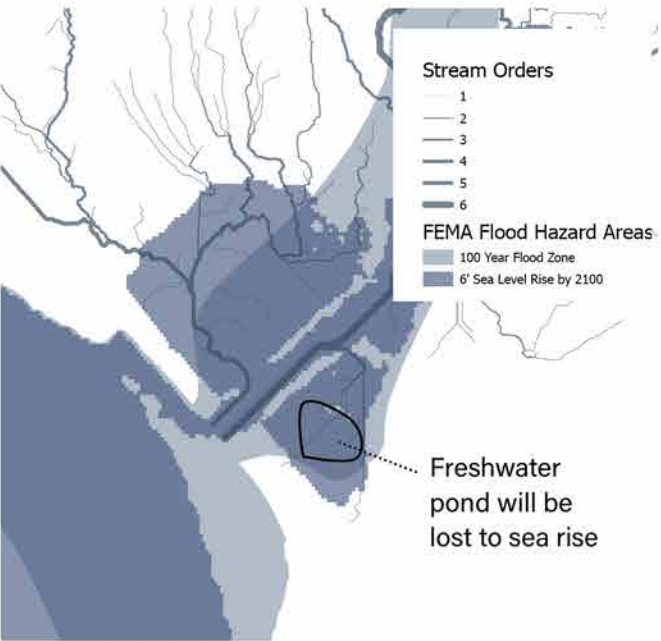
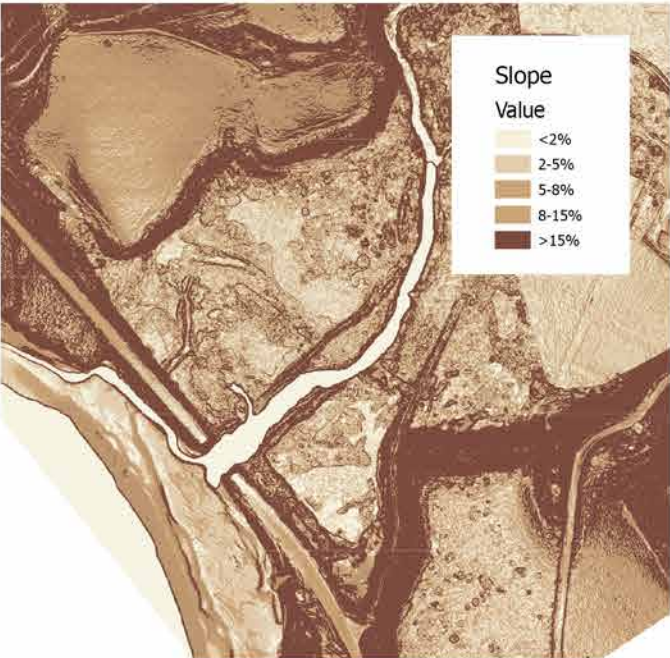
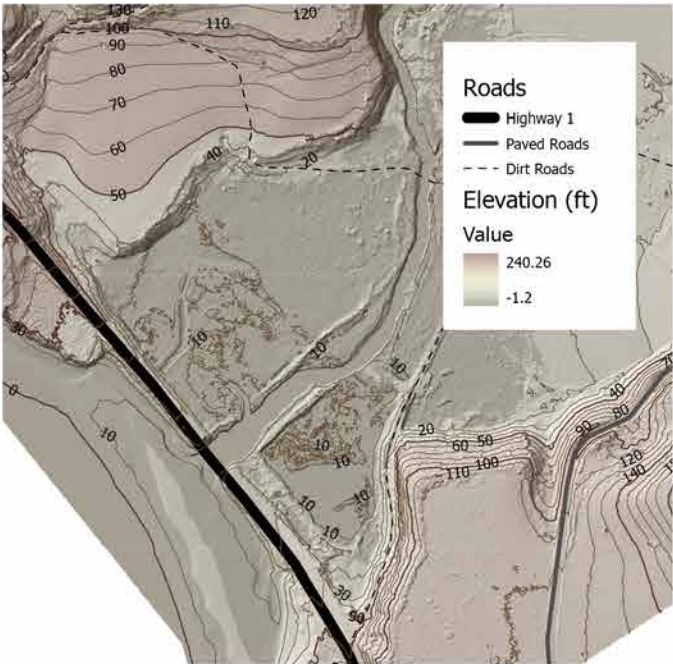
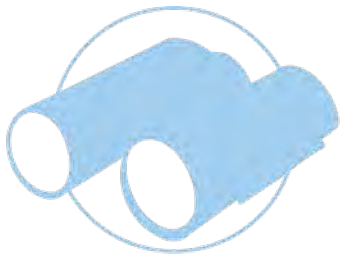


note: vegetation can touch past 30 feet



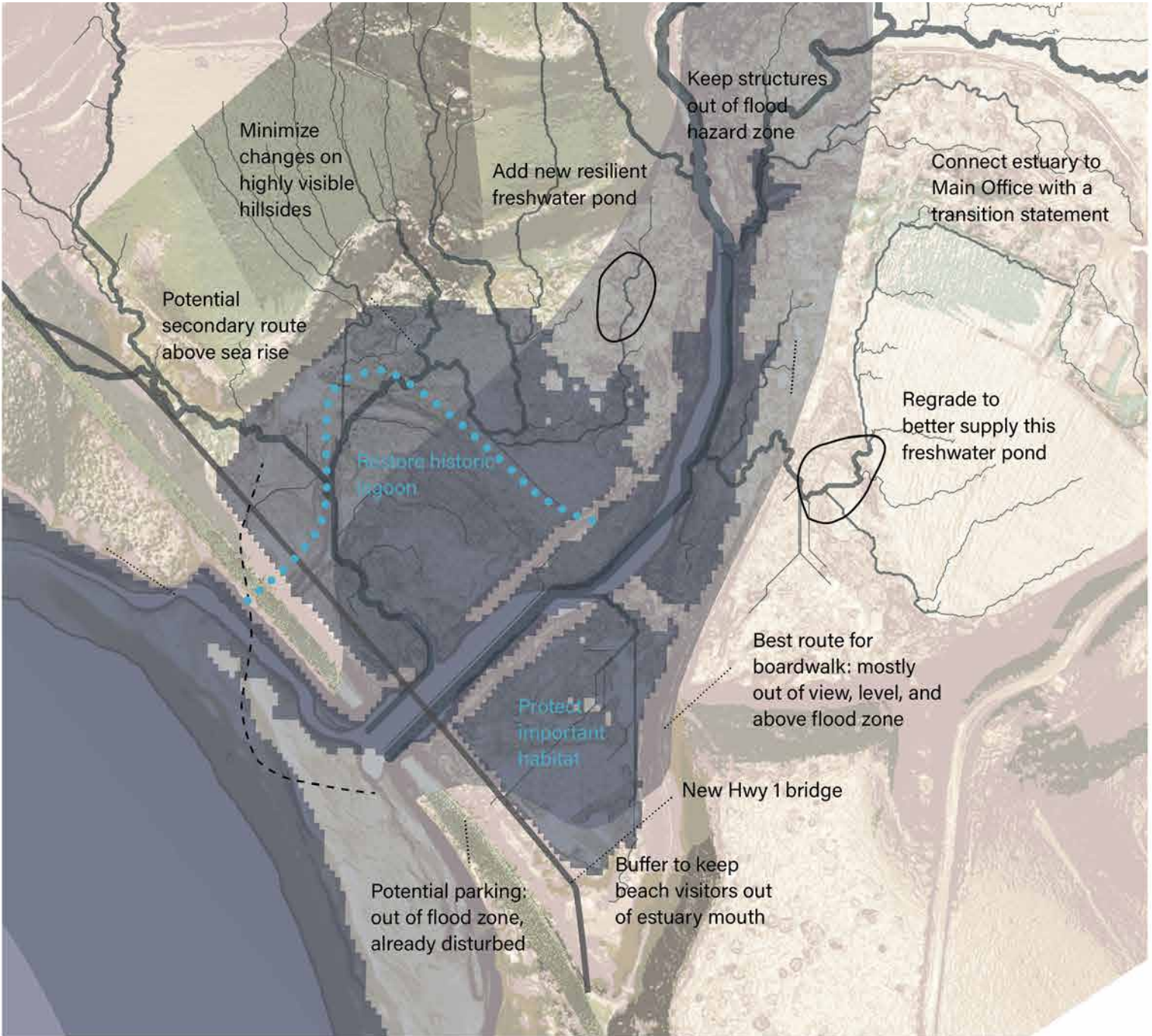
Estuary Inventory

Scotts Creek has been chanelized under the Hwy 1 bridge, damaging important lagoon habitat and eroding the creek bed. Restoring this ecosystem is vital for preserving Swanton's biodiversity.

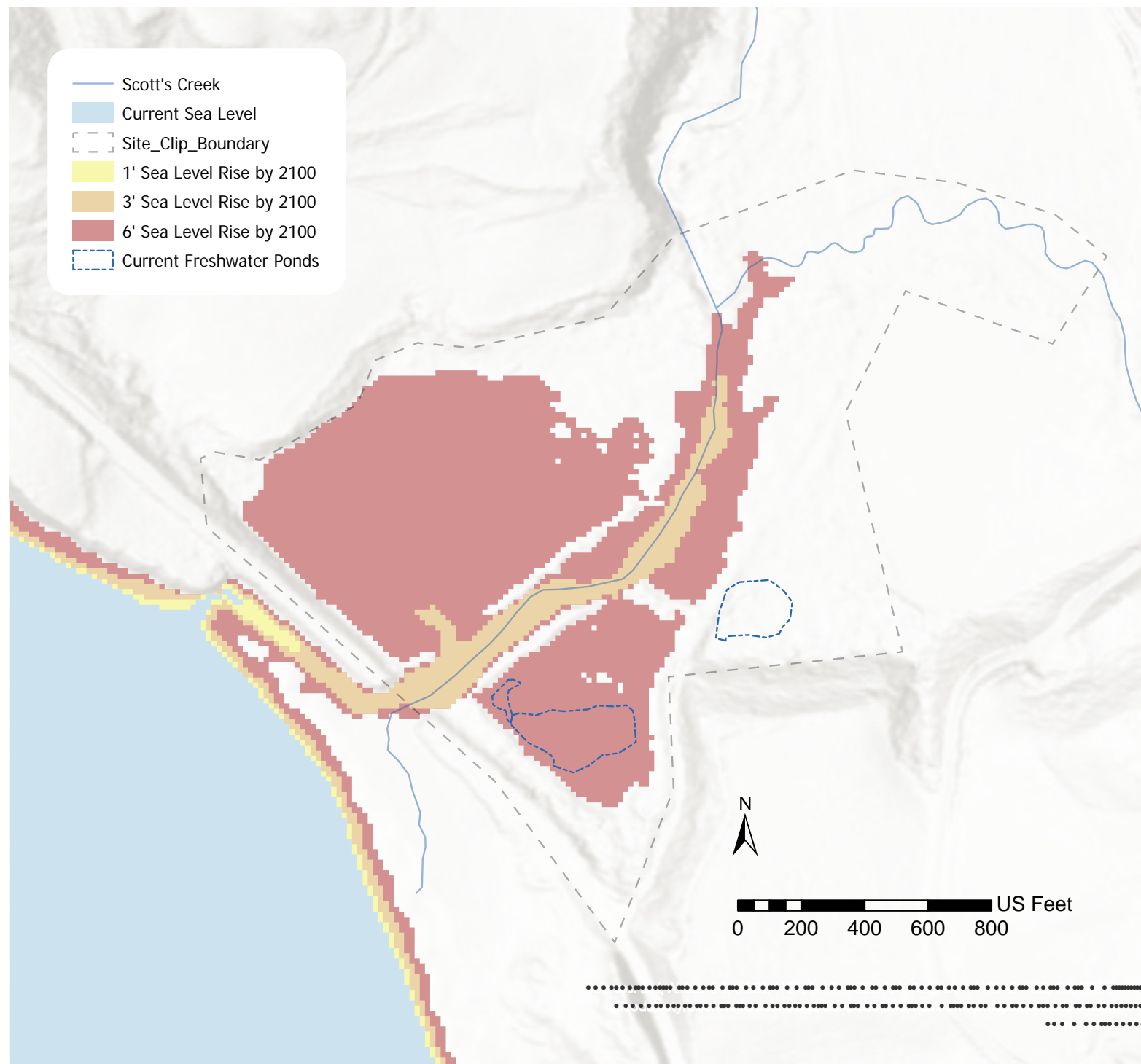


Estuary Analysis

Overlaying the data reveals the most suitable route for an estuary trail, one that is outside the impact of floods and rising sea level.



Sea Level Rise

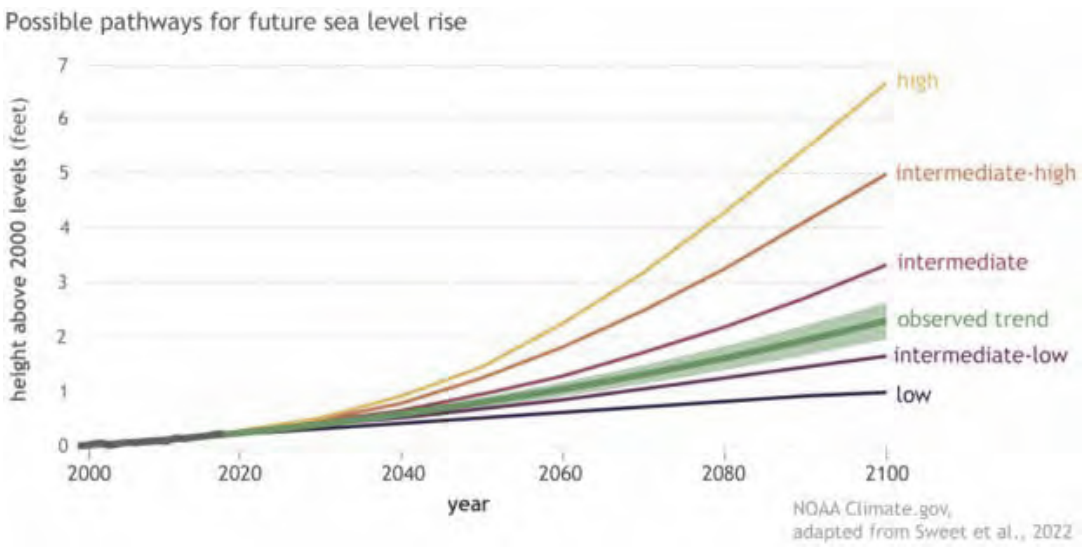


Sea Level Rise data from (Esri, n.d.)

Sea level rise has the potential to impact the Scotts Creek Estuary in a range of severity by 2100:

- 1' rise of sea level will be the best-case scenario if global climate change policy is implemented
- 3' rise of sea level will occur if the current rate of sea rise remains constant
- 6' rise of sea level will occur in the worst-case scenario if climate change reaches a tipping point of no return

(NOAA, n.d.)



Estuary Plants

Latin Name	Native?	Invasive?
Distichlis spicata	Native	no
Euthamia occidentalis	Native	no
Frankenia salina	Native	no
Juncus lescurii	Native	no
Mimulus guttatus	Native	no
Persicaria lapathifolium	Native	no
Potentilla anserina	Native	no
Polystichum munitum	Native	no
Rubus ursinus	Native	no
Scirpus microcarpus	Native	no
Scrophularia californica	Native	no
Sonchus asper	Non-native	no
Toxicodendron diversilobum	Native	no
Typha angustifolia	Native	no
Brassica nigra	Non-native	yes
Carpobrotus edulis	Non-native	yes
Conium maculatum	Non-native	yes
Zantedeschia aethiopica	Non-native	yes

(Resource Conservation District of Santa Cruz County, 2022)

NATIVES TO PROMOTE



Posion Oak
Toxicodendron diversilobum



San Fransisco Rush
Juncus lescurii



Yellow Monkeyflower
Mimulus guttatus



California Bee Plant
Scrophularia californica



Sword Fern
Polystichum munitum



Coyote Brush
Baccharis pilularis

INVASIVES TO REMOVE



Highway iceplant
Carpobrotus edulis




Poison Hemlock
Conium maculatum




Mustard
Brassica nigra



Calla Lily
Zantedeschia aethiopica

 Numbers of butterfly and moth species likely hosted. (California Native Plant Society, n.d.)

 California Native Plant Council rating. (California Invasive Plant Council, n.d.)
H - High
M - Moderate
L - Limited

Materials Palette



The mark of public space - graphitti



Boulder pile, retaining the bridge.
To be removed



View over the freshwater pond



Beach boardwalk



View of the creek's inlet through the sandbar.

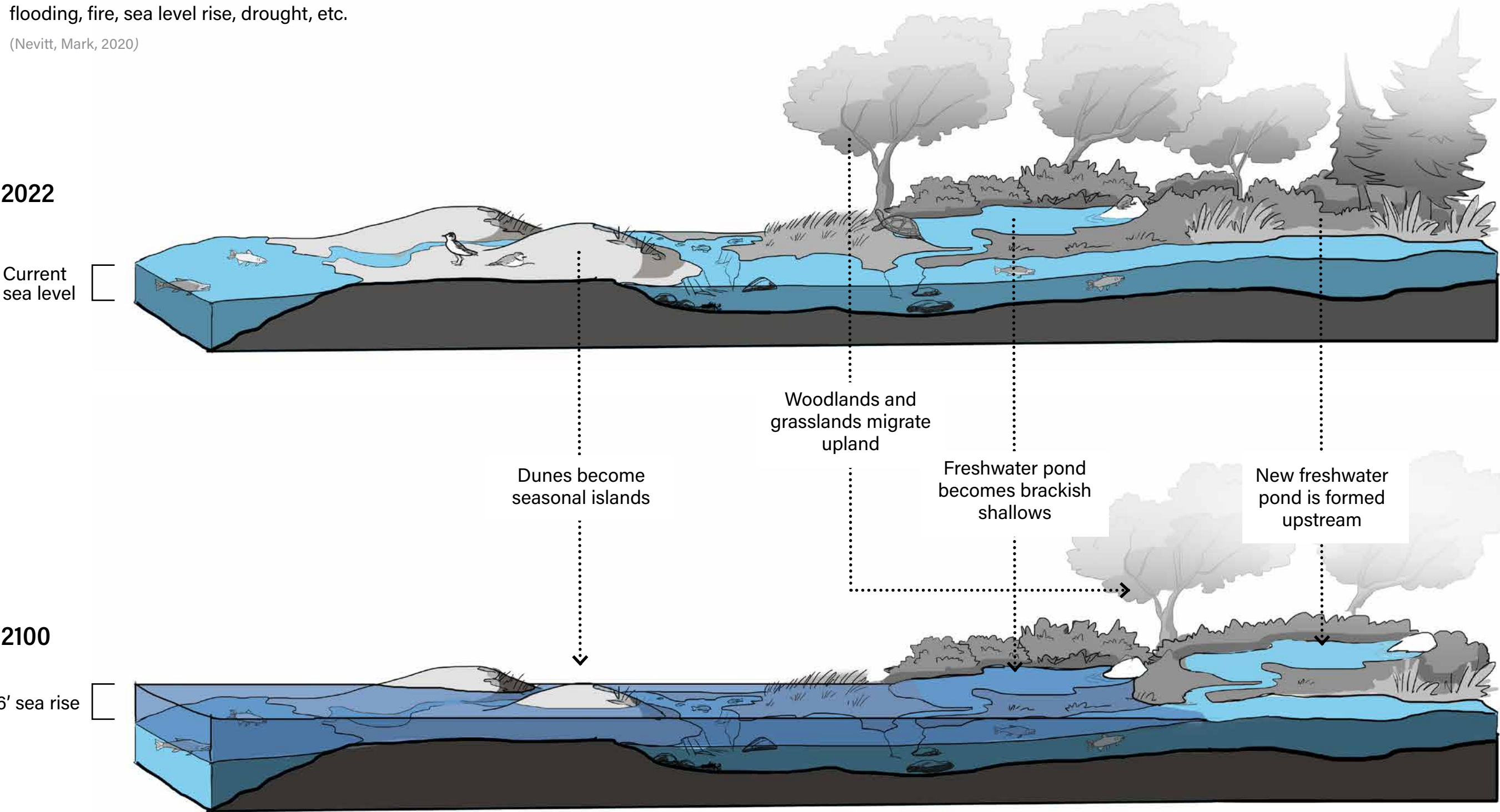


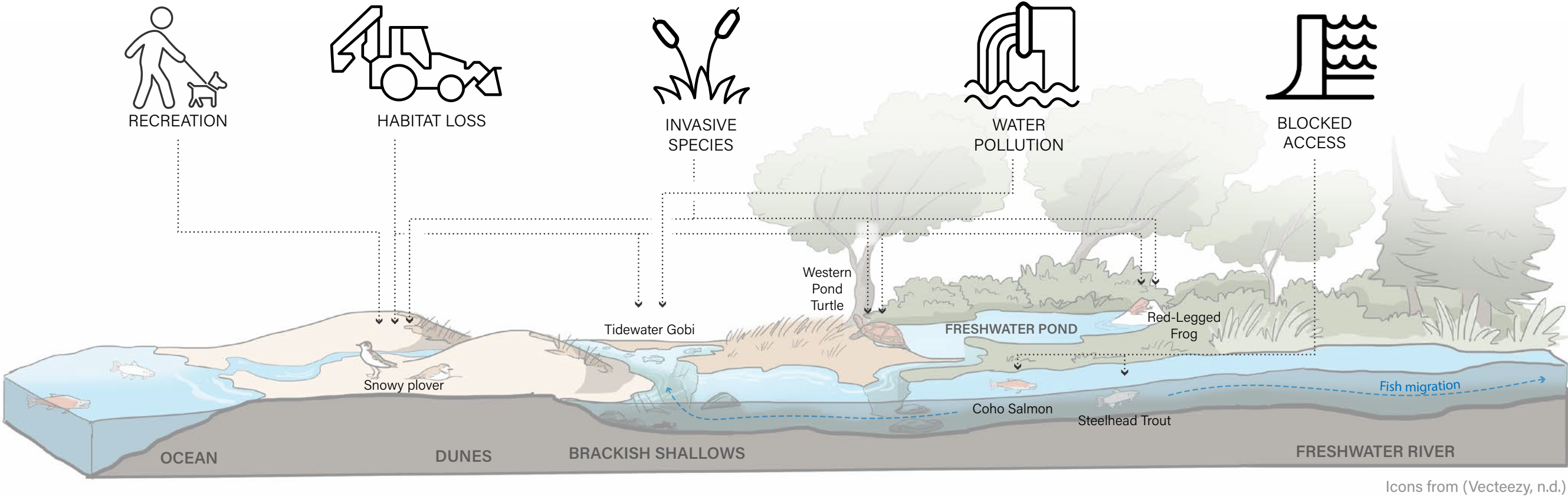
Unpaved trail along old rail berm. Weeds are not well maintained.

Managed Retreat

(n.) The coordinated movement of people, buildings, infrastructure, and communities that are away from risks. This includes the risk of flooding, fire, sea level rise, drought, etc.

(Nevitt, Mark, 2020)





Findings

With this exploration of the Estuary and its resources, we can begin to prioritize goals for design. The project must work with proposals from Cal Trans and the Resource Conservation District of Santa Cruz. The lagoon must protect its threatened species, while also acting as an educational resource for Cal Poly SLO and its staff at Swanton Pacific Ranch. Public access at Scotts Creek Beach is both a

challenge and a benefit, as visitors must be kept out of the estuary area, but design solutions could also educate the public of the estuary’s benefits. Finally, design should center around a protective and sustainable circulation pattern that allows management and viewing of the estuary without interrupting its fragile systems.

Challenges

- Restoring the Scotts Creek lagoon will require addressing these design challenges:
- Removing the narrow HWY 1 bridge and replacing it with a wider overpass
 - Protecting the lagoon from beach-goers
 - Preparing a resilient system that can survive sea-level rise

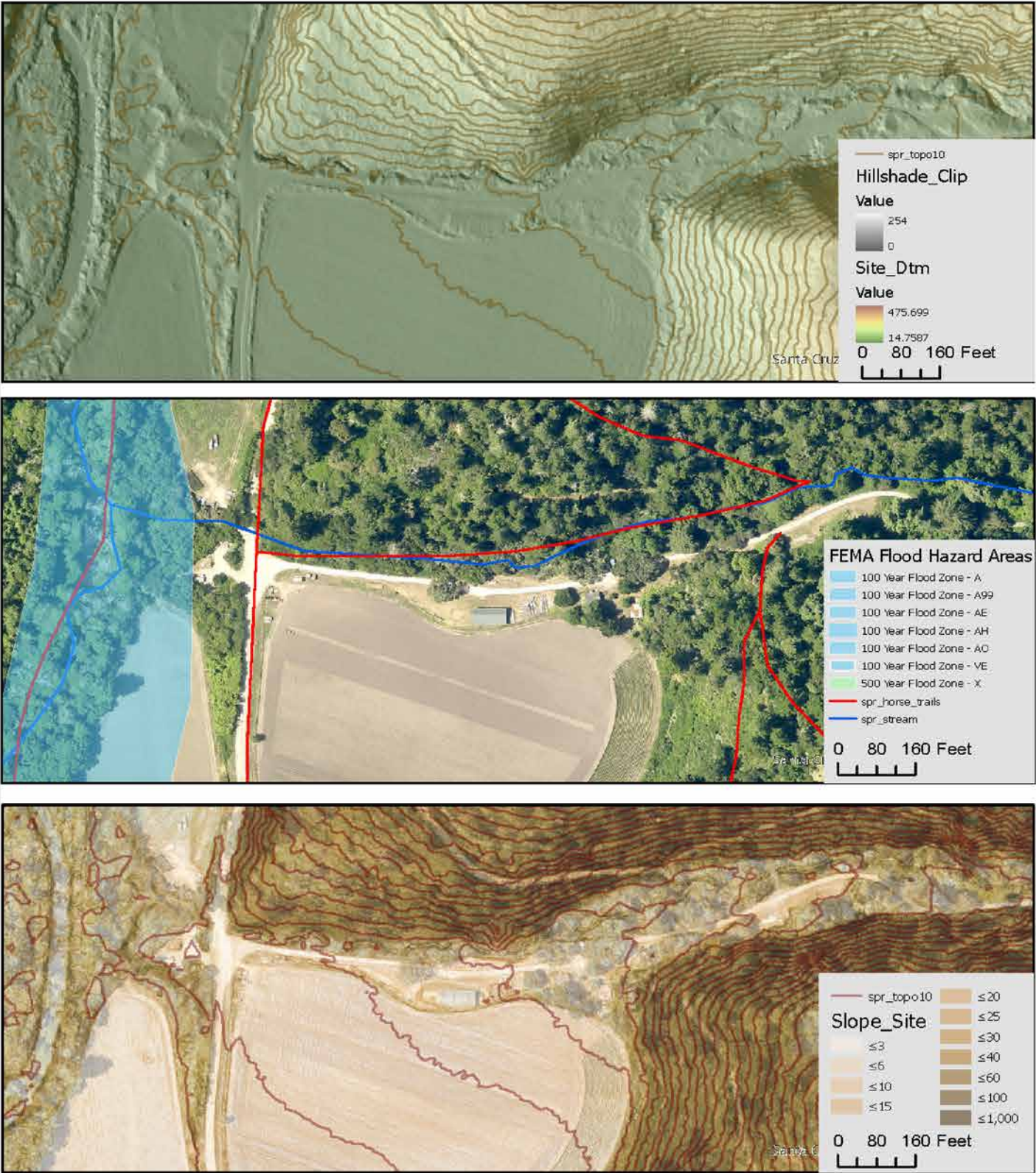
Opportunities

- These characteristics can support a resilient design:
- Past rail mound provides raised trail for access and education around the lagoon
 - Chance to connect the estuary trail to the public beach to maximize educational benefits

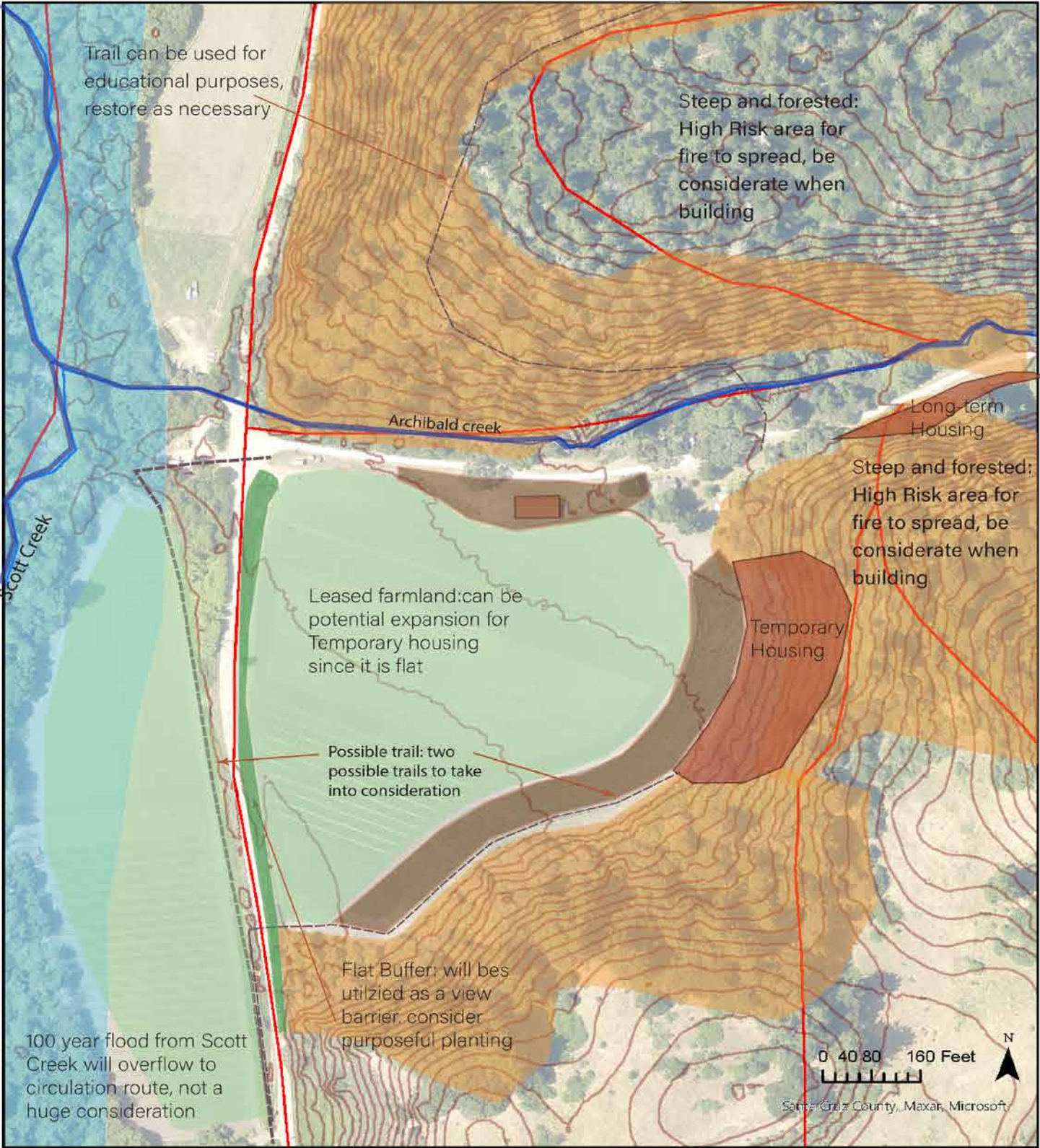




Temporary Housing Inventory



Temporary Housing Analysis



The Hearth

Views



Findings

The exploration of the temporary housing and its resources, we can begin to prioritize goals for the design. The 2020 CZU fire complex threaten and burned much of the existing vegetation. The project is taking account of the proposal from the architecture's studio and temporary housing was proposal at this site.

Located to the right, is a section cut from the architecture proposal. More information and studies can be found in our reference at the end of the booklet*



Challenges

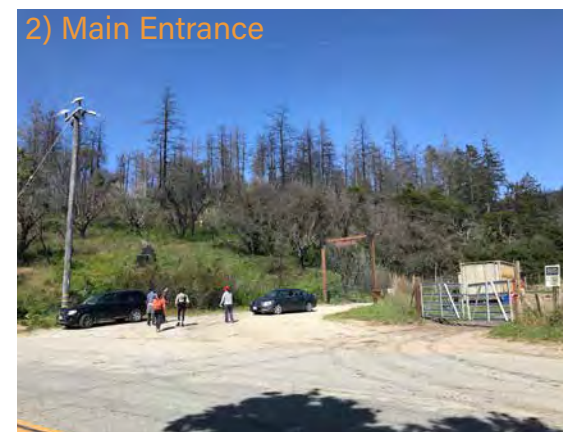
Designing the Temporary Housing will require addressing these design challenges:

- designing housing for up to 48-student interns
- Work with existing natural system to adapt to wildfires and drought
- Protect existing viewshed from users to not see design along the county road

Opportunities

These characteristics can support a resilient design:

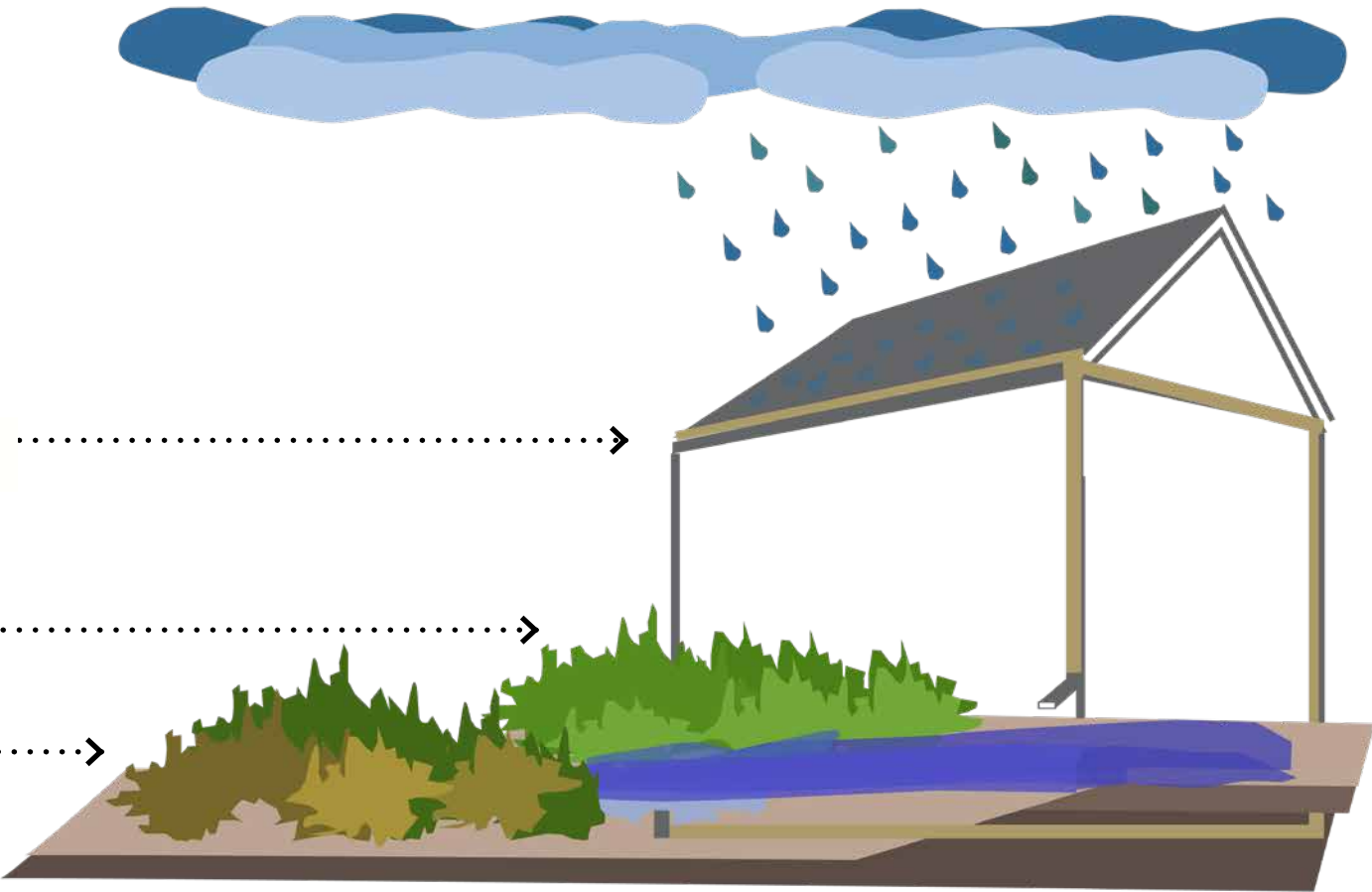
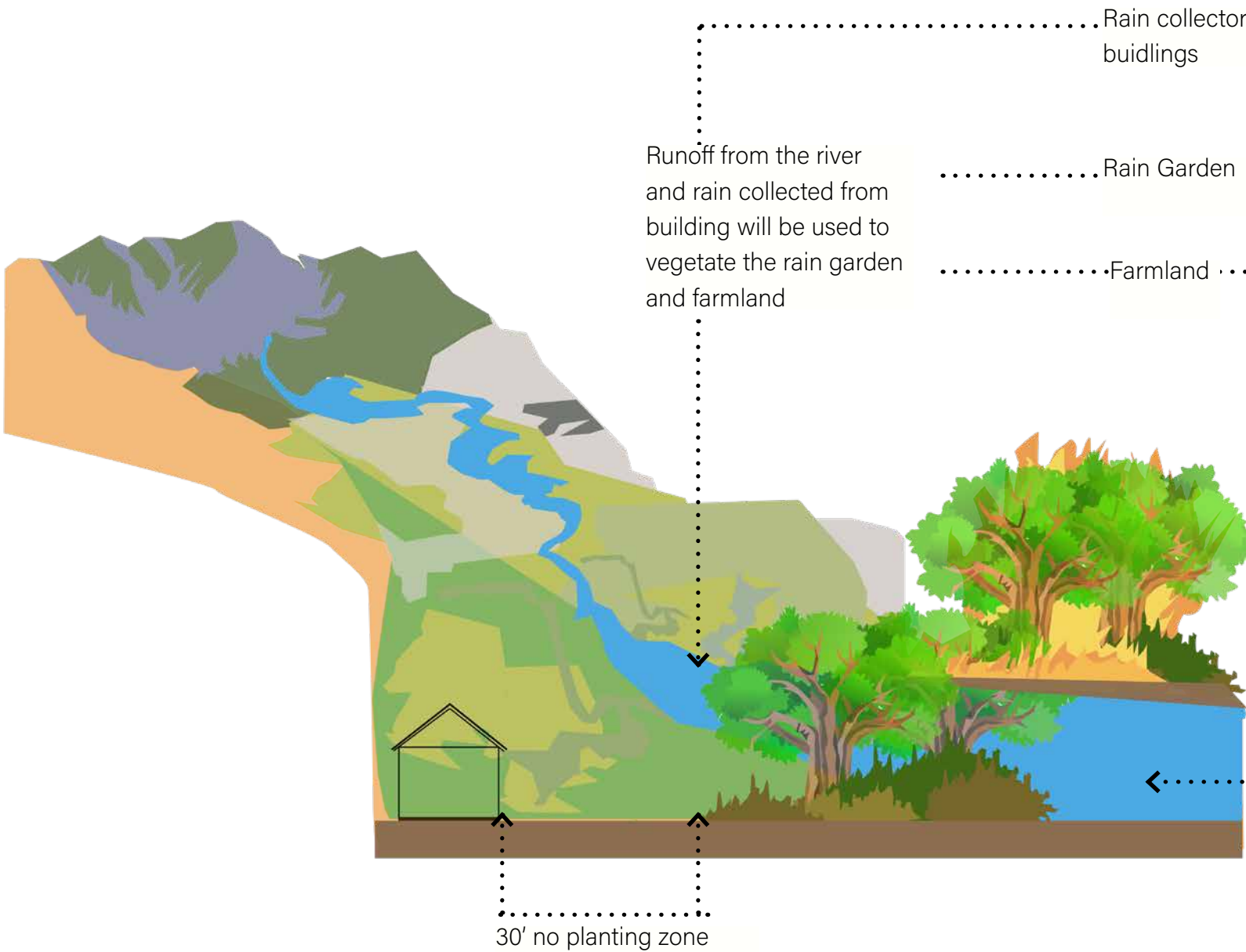
- proposed rain garden to collect from the rooftops of buildings
- working on a cohesive design from the architecture proposal
- connectivity among program elements for users
- design different sizes of gathering spaces



System Diagrams

Water collector

The water collector will be used to irrigate the rain garden and the runoff will be used for farmland irrigation. Underground pipes will be used to transport water collected from the buildings to vegetated farmland



Adapting to wildfire

The use of proposed fire zoning of 30' between any housing and vegetation

Water from the dry Archibald creek will be a natural barrier to prevent fire



CONTEXT

ANALYSIS

DEVELOPMENT

THE SEEDS

THE LAB

THE HEARTH



CH 3: DESIGN DEVELOPMENT

Developing our concepts and priorities

Mission Statement

Setting Goals

Getting Around Swanton's Core

Plant Palette

Material Palette

Mission Statement

Our Theme: ADAPT

OBJECTIVES

Our theme of adaptation seeks to reveal the constant flux of a landscape through time, such as fire, erosion, and sea level rise. Adaptation can also refer to how people interact with their environment, such as when student interns are

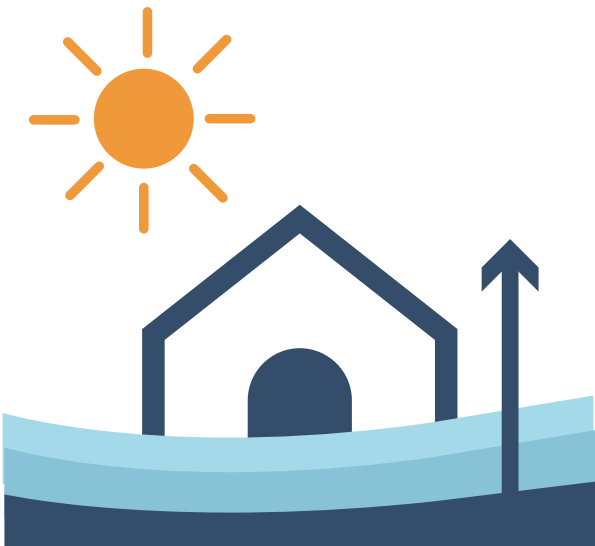
introduced to a new learning facility. The Trifoliate Team will design Swanton amenities to provide access for users, while protecting areas that support these important natural processes of adaptation.

We will design each site to prioritize adaptation to natural events, such as future wildfires or sea level rise. Secondary priorities will be educational opportunities, connectivity, and minimizing impact.



Adapt to
**Natural
Disasters**

- Design all new buildings will follow fire standards
- Place new paths outside of flood hazard zone



Adapt to
**Changing
Climates**

- Provide estuary habitat for managed retreat from sea level rise
- Plan transportation within Swanton's Core for a net-zero carbon future and have minimized impact on the environment




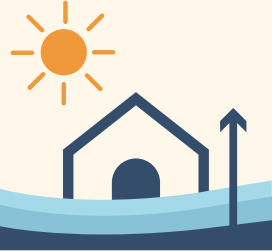




Adapt to
**Learning in a
new setting**

- Integrate living and educational spaces
- Design a mix of social and private spaces
- Include opportunities for recreation
- Plan accessible routes within all sites

Setting our Programs

The Three Objectives


The Three Sites

			
<div><div>The Seeds</div></div>	<ul style="list-style-type: none">▪ 30' buffers around buildings to prevent the spread of fires▪ Swales and rain gardens to collect heavy precipitation and protect from flooding	<ul style="list-style-type: none">▪ Rainwater catchment and storage helps buildings adapt to different precipitation patterns▪ Greenhouse provides local food and education▪ Connection to a low-carbon transportation system	<ul style="list-style-type: none">▪ Private, single-family housing▪ Recreation spaces▪ Dining hall▪ Study spaces▪ Classrooms
<div><div>The Lab</div></div>	<ul style="list-style-type: none">▪ Shoe brushes to prevent the spread of invasive plants or diseases▪ Major structures are built above 100 year flood hazard zone	<ul style="list-style-type: none">▪ Appropriate habitat for threatened species▪ Habitat available after sea rise▪ All trails sited above 6' of sea rise	<ul style="list-style-type: none">▪ Educational trail▪ Stations for water quality testing▪ Buffer between public beach and restoration site
<div><div>The Hearth</div></div>	<ul style="list-style-type: none">▪ 30' buffers around buildings to prevent the spread of fires▪ Major structures are built above 100 year flood hazard zone	<ul style="list-style-type: none">▪ Connection to a low-carbon transportation system▪ Rainwater catchment and storage helps buildings adapt to different precipitation patterns	<ul style="list-style-type: none">▪ Long term housing for 5-8 people▪ Temporary housing for 48▪ Access to adjacent trails▪ Campfire and gathering spaces

Getting Around Swanton's Core

As part of Swanton's adaptive infrastructure, the Core of the ranch will be connected by a paved path that supports pedestrians, bikes, and neighborhood electric vehicles (NEVs). Visitors and staff will be able to check-out Cal Poly owned bikes and NEVs to travel throughout the Core.



 **Bike racks**
Can be used to park personal bikes or Swanton owned and rented bikes.







Signage
Provides direction and safety by specifying pedestrians and bicyclists with right-of-way

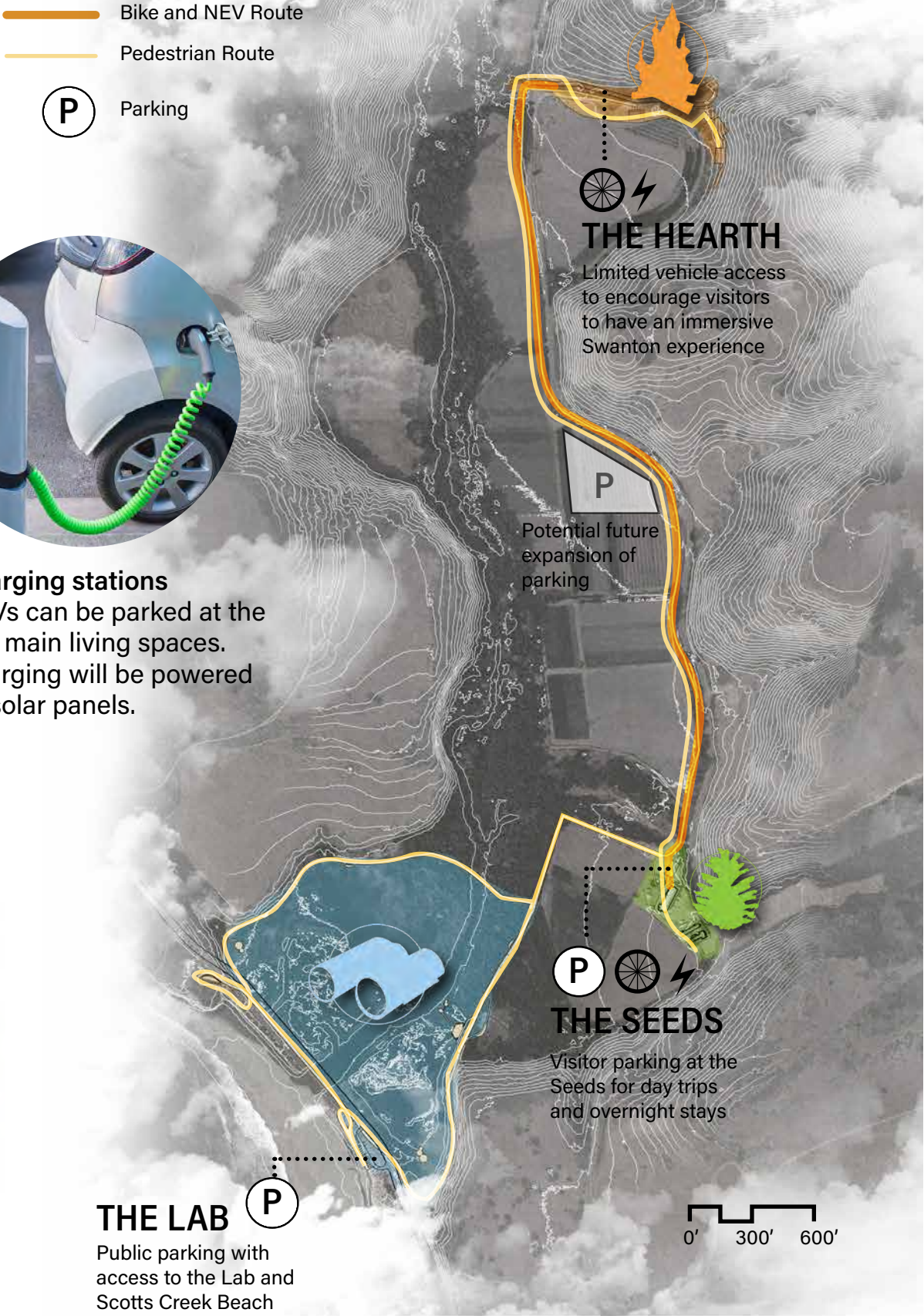
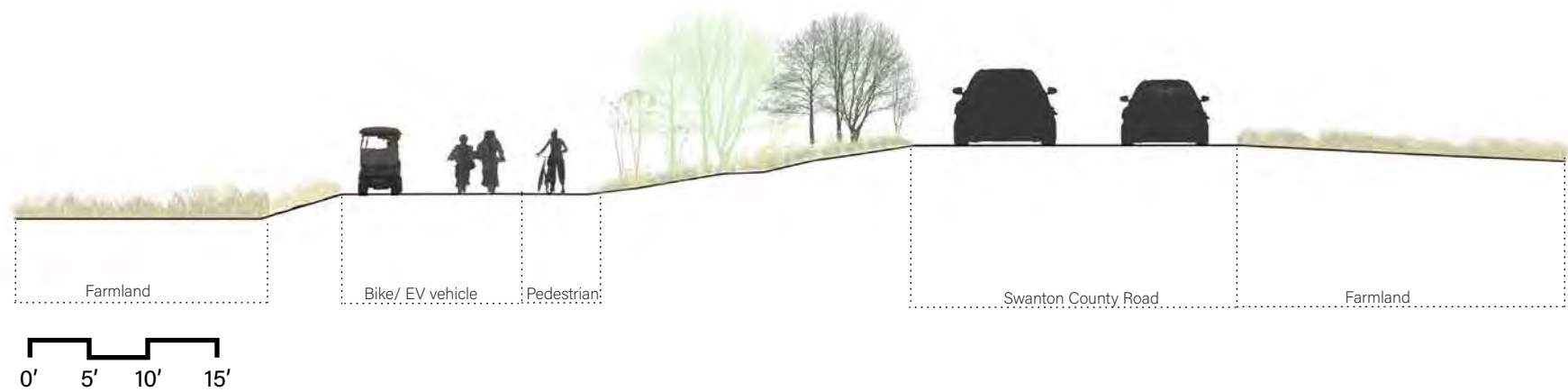


NEVs
Neighborhood Electric Vehicles provide fast, accessible transportation. They can also be used for the hauling of small goods, such as camping supplies.



 **Charging stations**
NEVs can be parked at the two main living spaces. Charging will be powered by solar panels.

-  Bike and NEV Route
-  Pedestrian Route
-  Parking



Plant and Materials Palette

Plants in designed spaces (at all three sites) will follow a warmer flower color scheme. The following plant palette focuses on plants native to SPR, and this information will provide a general guide for the three

specific sites in the area. Materials like redwood and recycled plastic have a sustainable emphasis. While colored D.G. and boulders hope to add a splash of aesthetic polish that is also fire-resistant.



ethnobotanic pollinator

Madrone (Native Foods Nursery)
- *Arbutus menziessii*



shade providing tree

Monterey Pine (Tree's of SC County)
- *Pinus radiata*



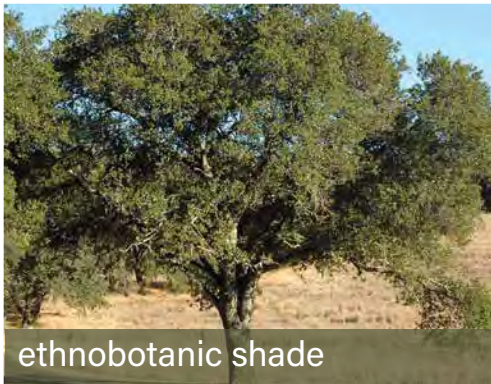
warm aesthetic pollinator

Sticky Monkey Flower (Gardenia)
- *Mimulus aurantiacus*



ethnobotanic riparian grass

Tule Root ("Southern bulrush")
- *Schoenoplectus caalifornicus*



ethnobotanic shade

Coast Live Oak (OSU)
- *Quercus agrifolia*



shade providing tree

Knobcone Pine (The Gymnosperm Database)
- *Pinus attenuata*



pollinator

Coyote Brush(The Watershed Nursery)
- *Baccharis pillularis*



ethnobotanic riparian cover

Miner's Lettuce(Flora and Fauna Northwest)
- *Claytonia perfoliata*



reused coast redwood
(Robertson)



recycled plastic planks
(Integrated Recycling)



local boulders
(Pacific Stonescape)



D.G. (decomposed granite paths)
(K&D Landscaping)





CH 4.1: The Seeds

Redesigning Casa Verde and SPR's Main Office to provide flexible educational spaces that adapt to the natural environment.

Abstractions
Conceptual Diagrams
Plan of the Seeds
Sections

The Seeds Design Development

The initial inspiration regarding the site relates to how certain species utilize fire to their advantage. For example, knobcone pines and monterey pines spread their seeds in fire, which is a dynamic condition.

There was an exploration of how students gain new experiences when they immerse themselves in different circumstances, leading to new knowledge gained.

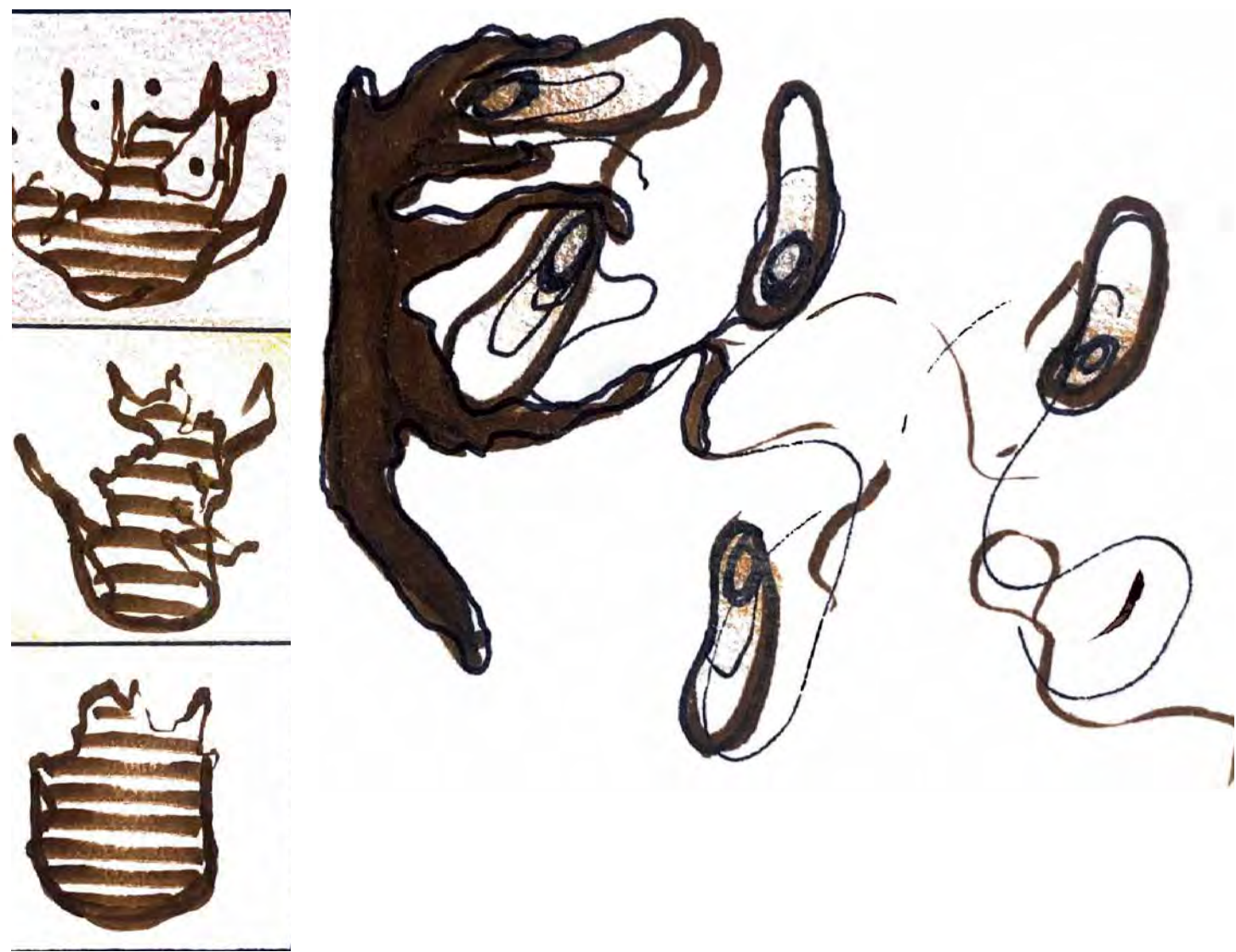
Knobcone Pine



Monterey Pine



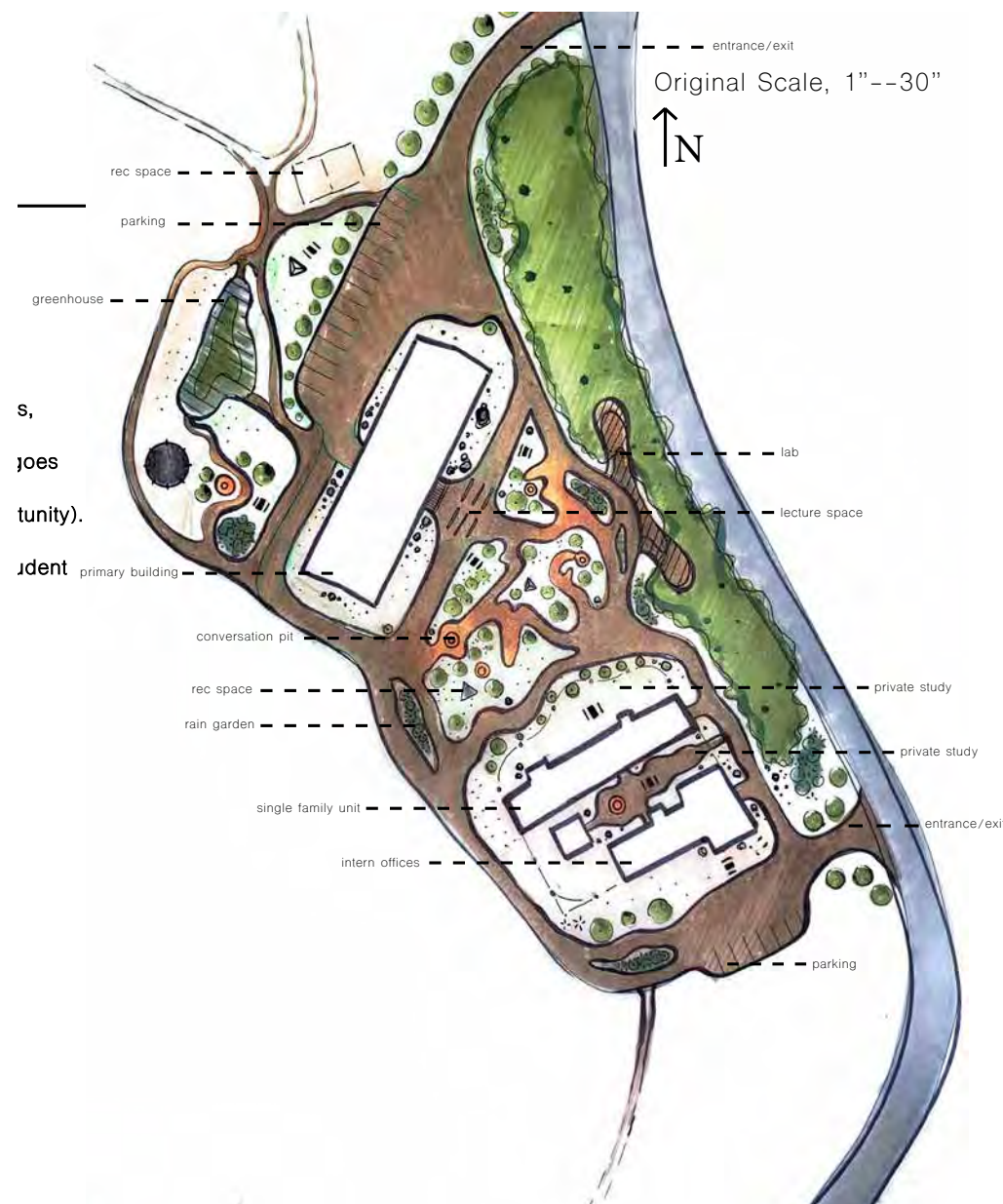
Seeds Spreading Through Fire or Heat



Conceptual Diagrams

Three conceptual diagrams were proposed (initially based on the seeds inspiration). Concept #1 was selected, for further design.

CONCEPT #1



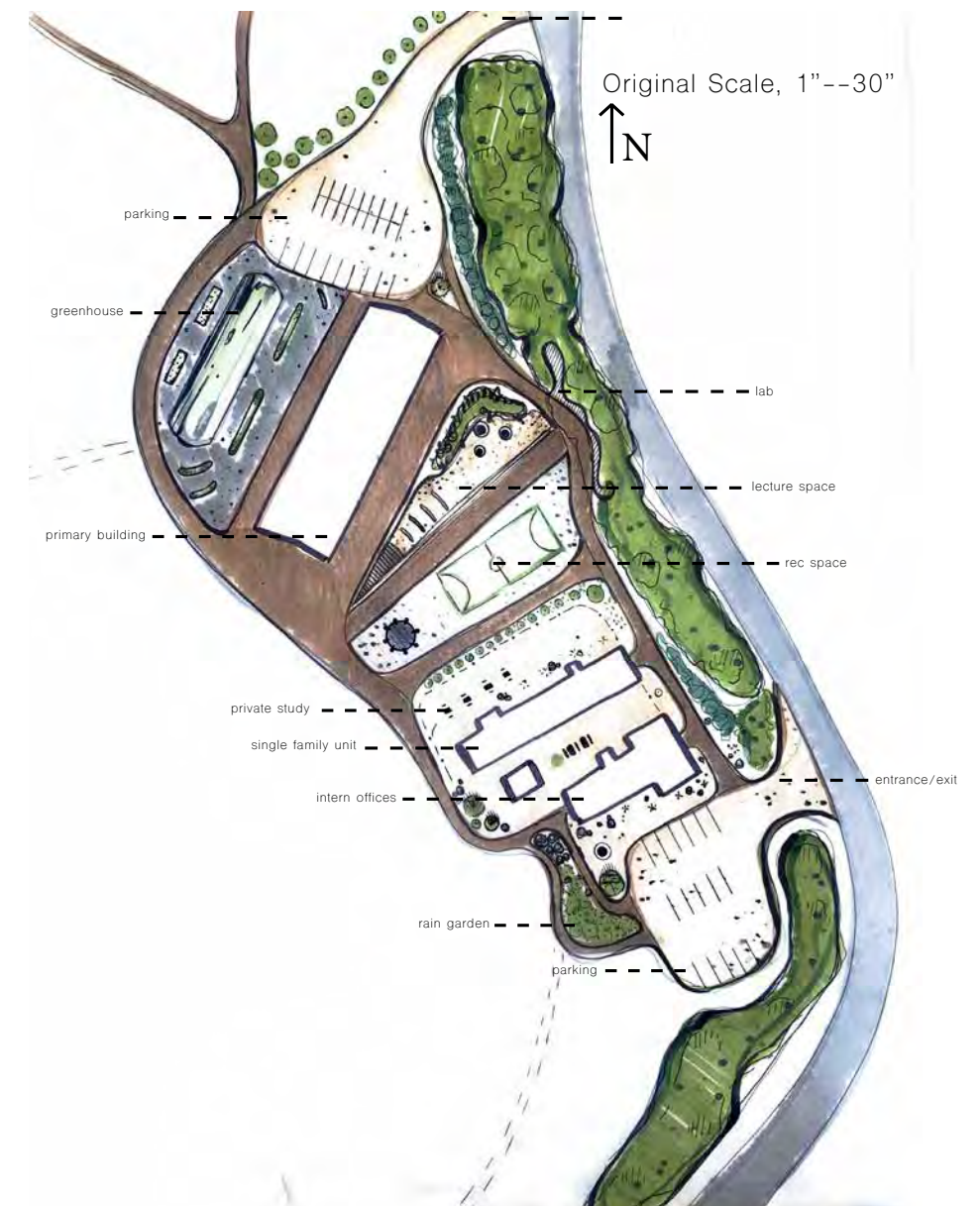
This design highlighted the dynamic changes of educational opportunities. The proposal maximizes the student's experience, but this render appears to be the most expensive.

CONCEPT #2



Escapability (in fire or flooding) is the prominent backbone of this work. Red colors indicate entrances and exits. This design is the least-established because of its intention to be easily left in times of disaster.

CONCEPT #3



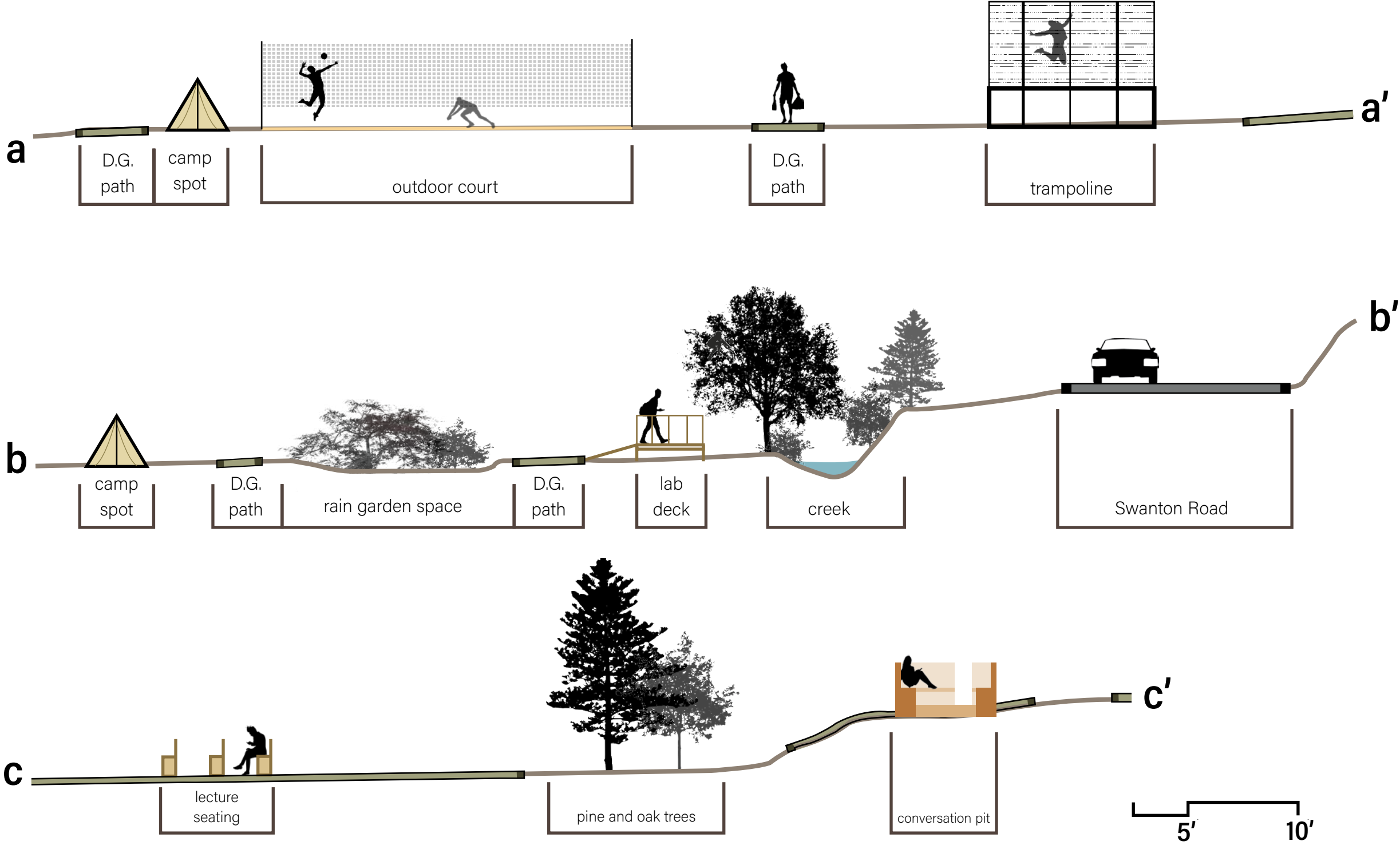
Concept #3 highlights the client's wants. With locations promoting recreational facilities and laboratories. The main drawback is that inspiration is minimized in this prototype.

Plan of the Seeds

- ① conversation pit
- ② lecture space
- ③ exclusive study space
- ④ potential campsite
- ⑤ green house lab
- ⑥ recreation court
- ⑦ parking
- ⑧ drop off



SECTIONS





Boardwalk from recycled plastic, making it fire resistant, long lived, and not toxic

Gravel trails where railroad grade is flat, which reduces the cost of the boardwalk

CAL POLY
Living Labratory
AUTHORIZED
PERSONEL ONLY

Split rail gates allow Swanton students and staff closer access to the estuary



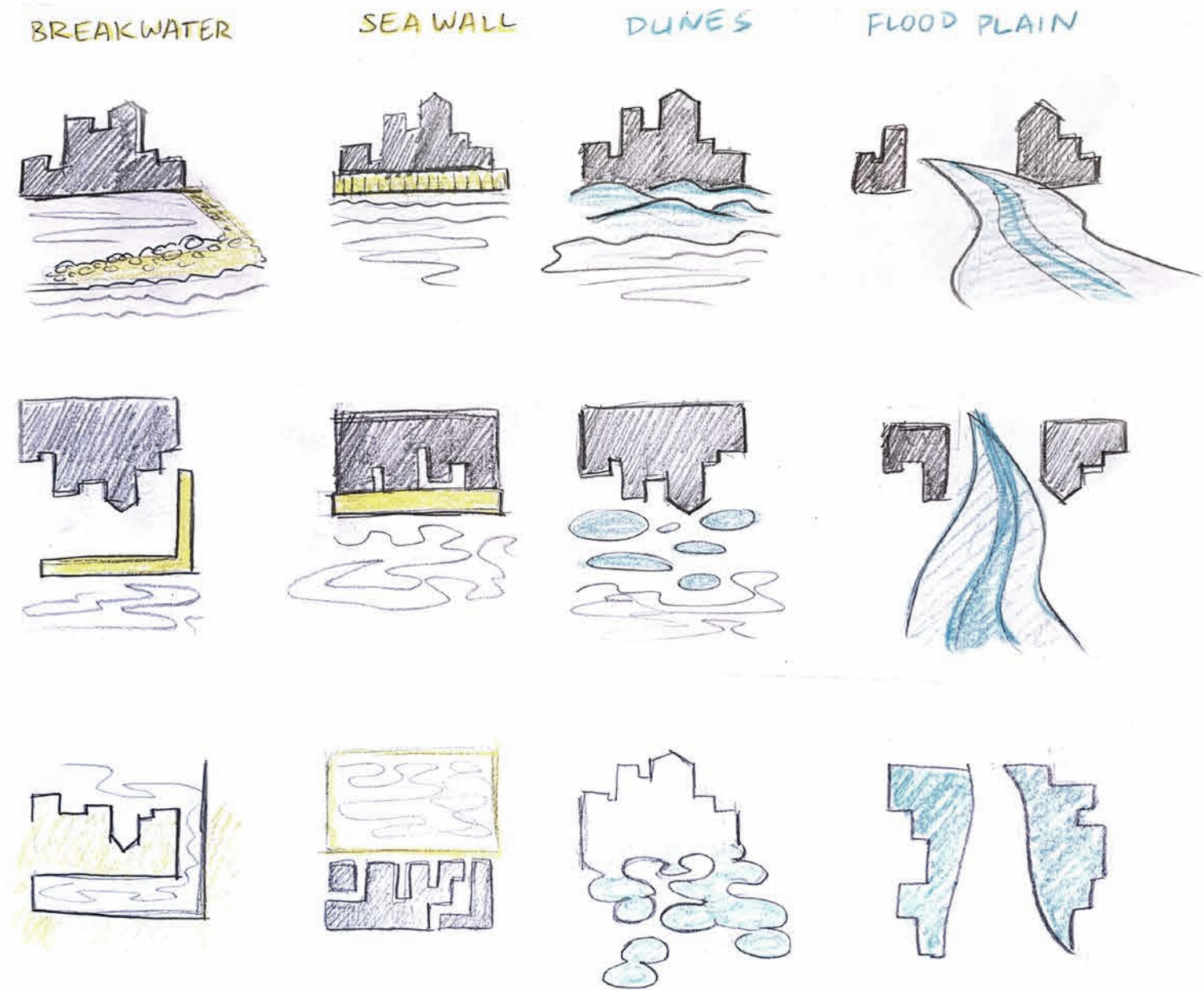
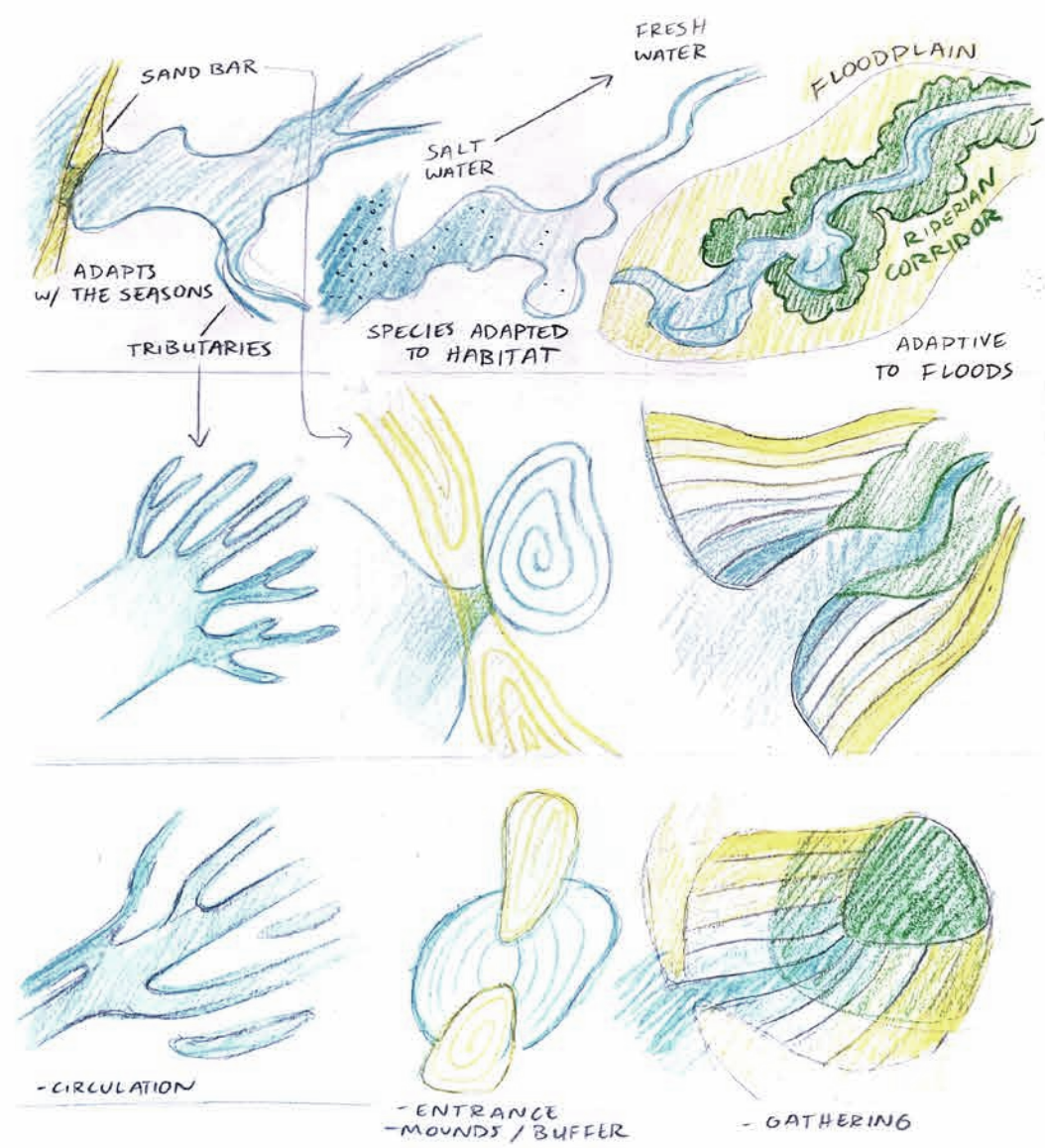
CH 4.2: THE LAB

This proposal would redesign the Scott's Creek estuary to support adaptive habitat, provide outdoor classroom experiences, and educate the public on the values of restoration.

Estuary Design Development
Plan and Perspective of the Lab
Why Public Space?
Estuary Sections

The Lab Design Development

Abstract Exploration of the Estuary





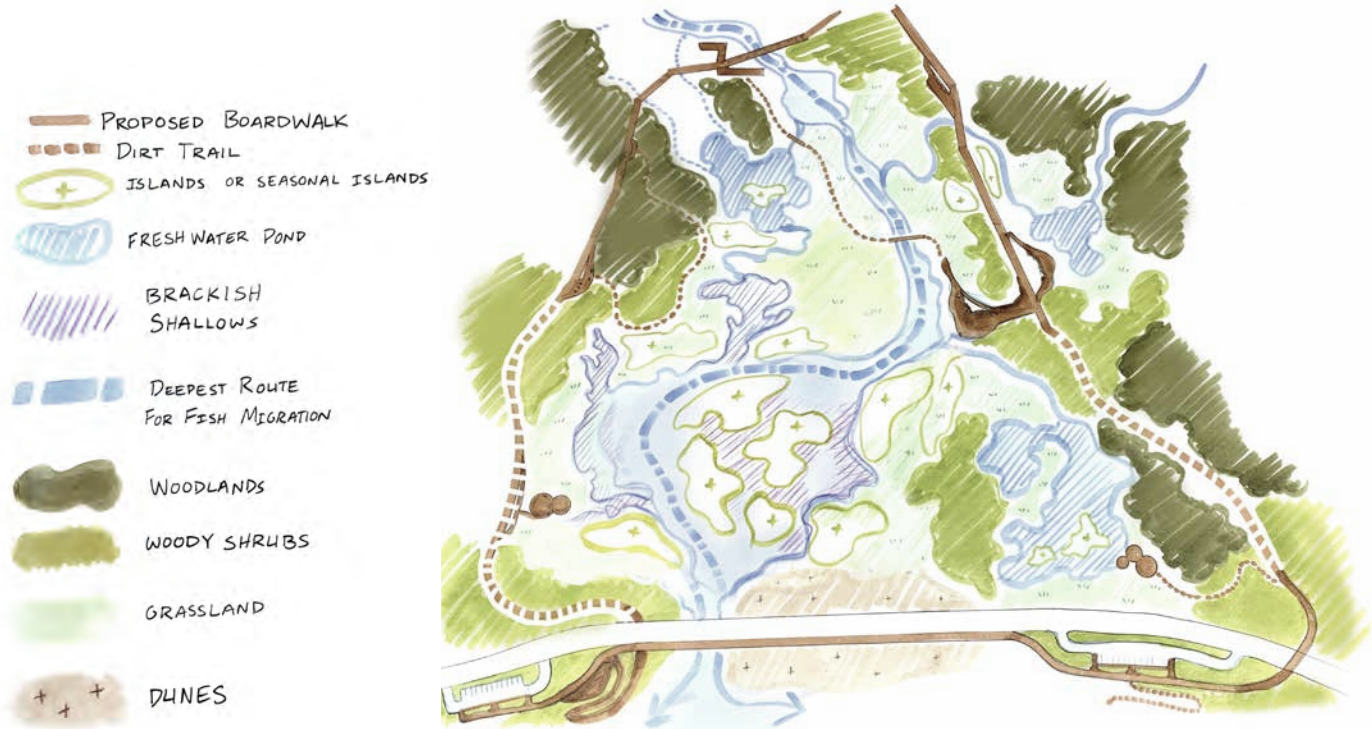
Concept 1 - Perimeter
Pros: Minimized impact on habitats
Cons: Limited educational opportunities









Concept 2 - Immersed
Pros: Maximized educational opportunities
Cons: Most impact on habitats

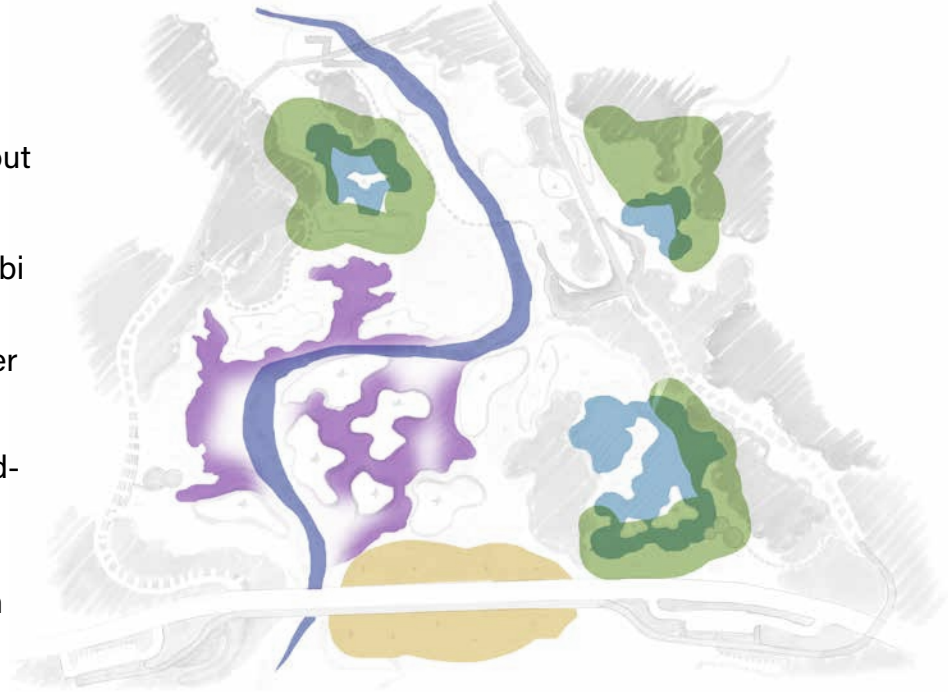


Concept 3 - Sea Level Rise
Explores how the estuary will look by the year 2100, if sea level were to rise 6 feet.



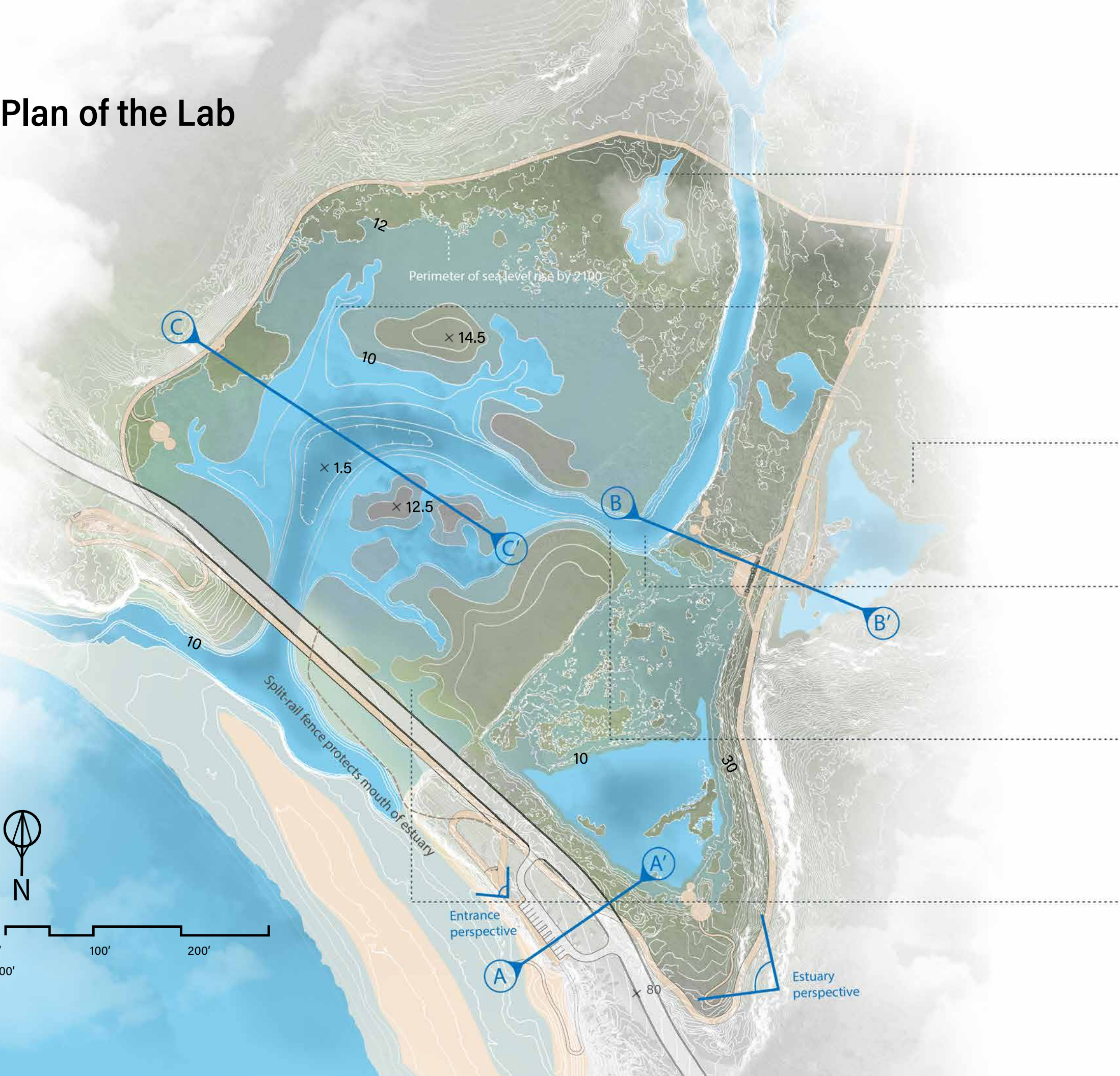
Final Concept - Access and Adapt
Combines a perimeter of public education access with minimized impact in the core of the estuary.

-  Coho Salmon
-  Steelhead Trout
-  Tidewater Gobi
-  Snowey Plover
-  California Red-Legged Frog
-  Northwestern Pond Turtle



A closer look at habitats that will support each of the six threatened species along Scott's Creek

Plan of the Lab



California Red-Legged Frog
Endemic to coastal California.
Lives in freshwater slow-moving
or standing ponds or streams.



Tidewater Gobi
Thrive in shallow, brackish
waters - an interface of both
salt and freshwater



Western Pond Turtle
Lives in freshwater and nests
in nearby grassland and
woodland.



Coho Salmon
Hatch in freshwater rivers
and migrate to the ocean.

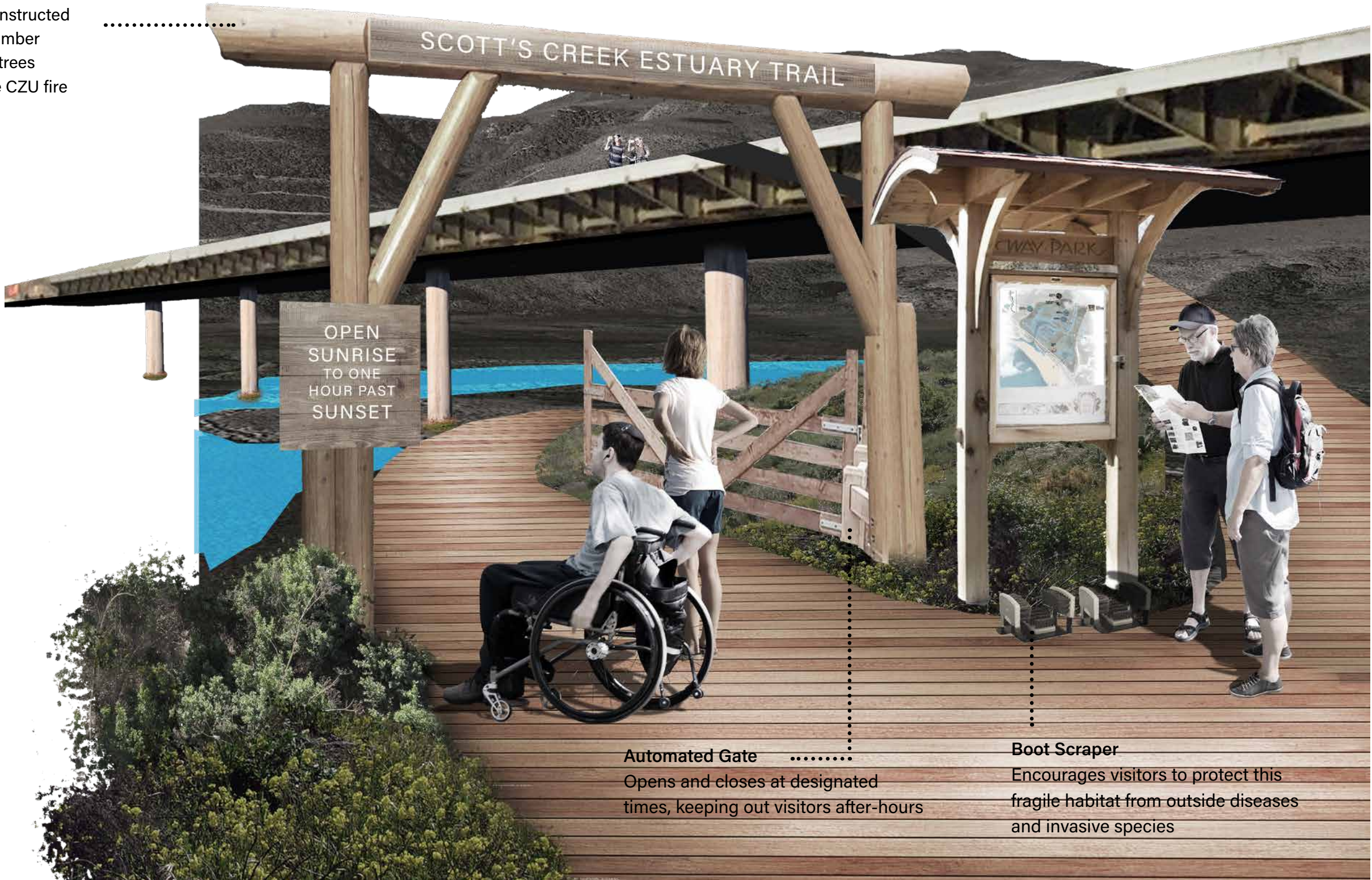


Steelhead Trout
Hatch in freshwater rivers
and migrate to the ocean.



Snowy Plover
Nests on flat, open beaches
in front of foredunes.

Site furniture constructed with redwood lumber harvested from trees damaged by the CZU fire



Automated Gate
Opens and closes at designated times, keeping out visitors after-hours

Boot Scraper
Encourages visitors to protect this fragile habitat from outside diseases and invasive species

Why Public Space?

Public space is essential to making our society more equitable and adaptive. Education around the estuary teaches

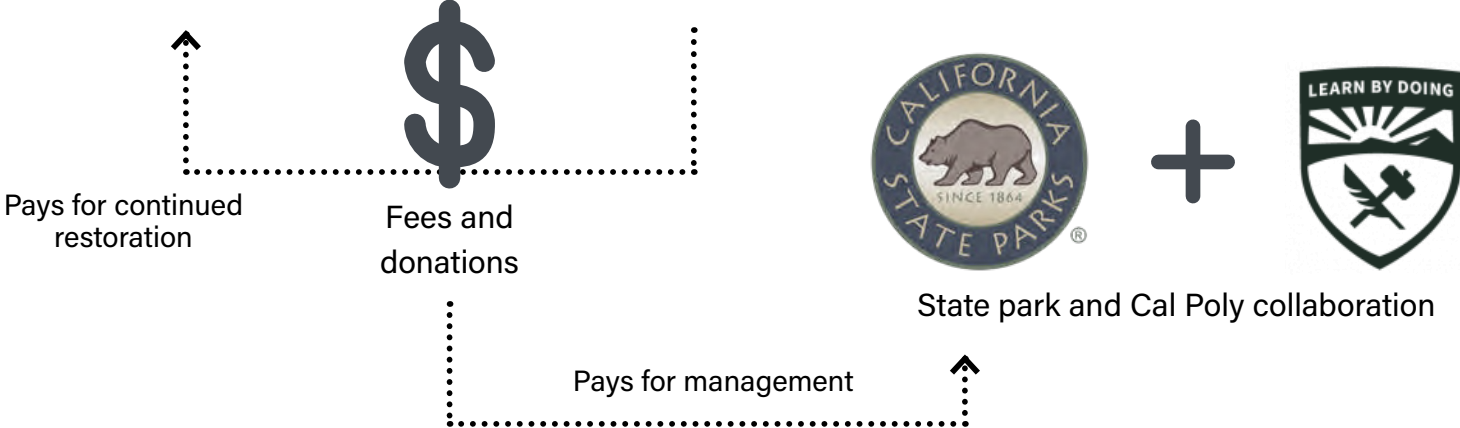
visitors about the values of restoration. This encouragement will tell them to call for action in their own communities.



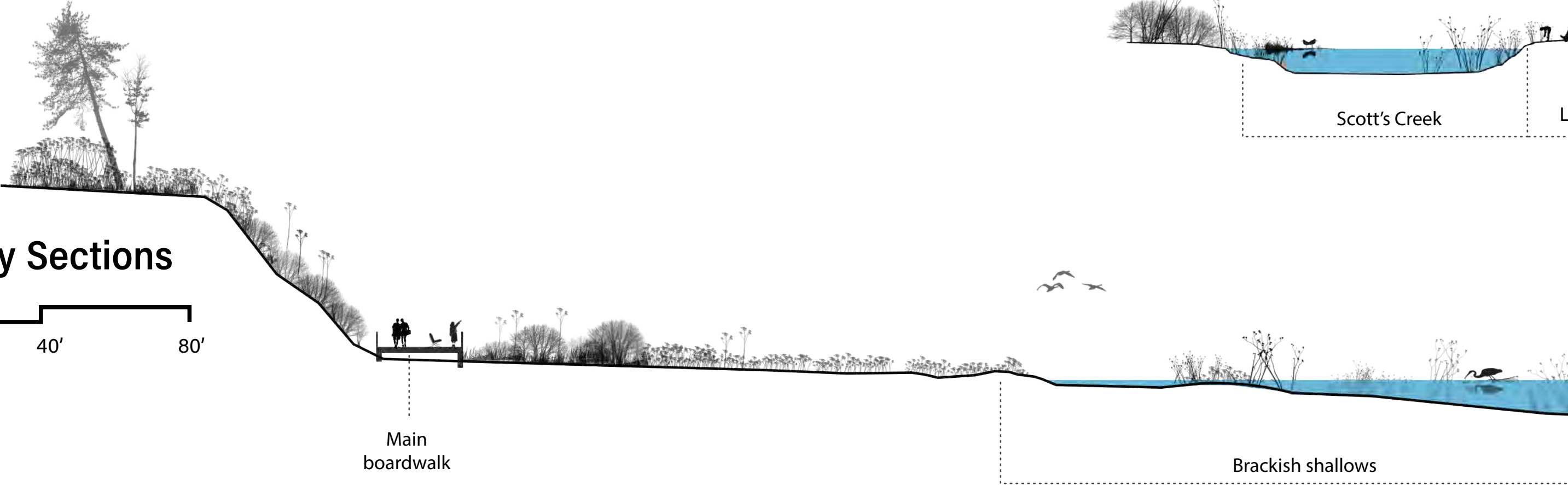
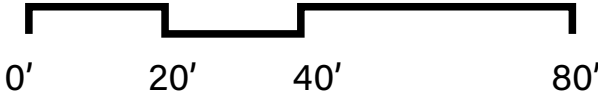
Adaptive restoration

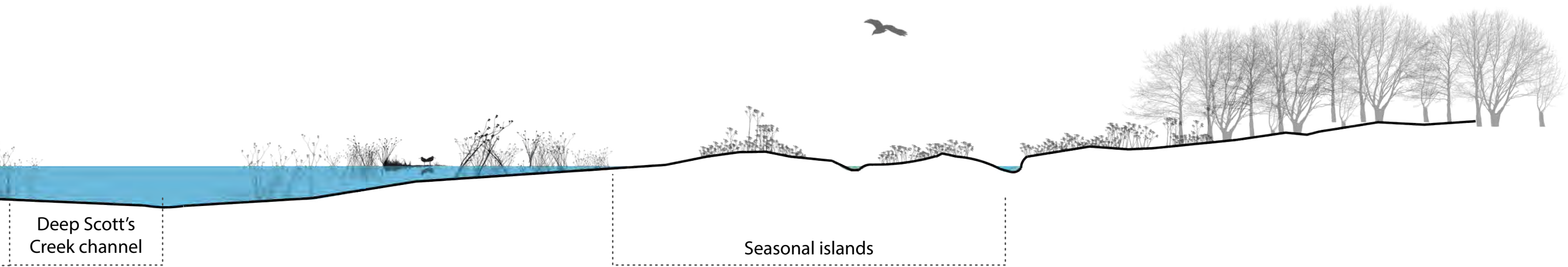
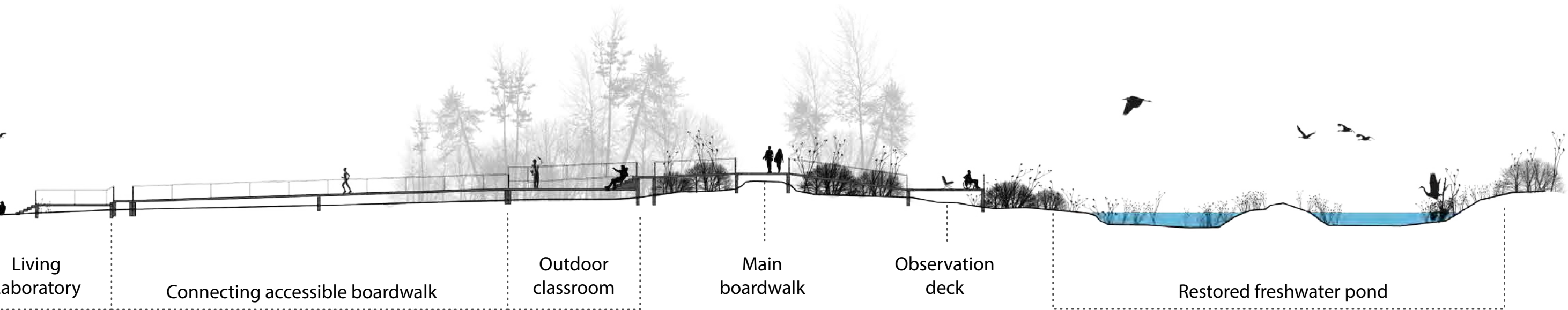
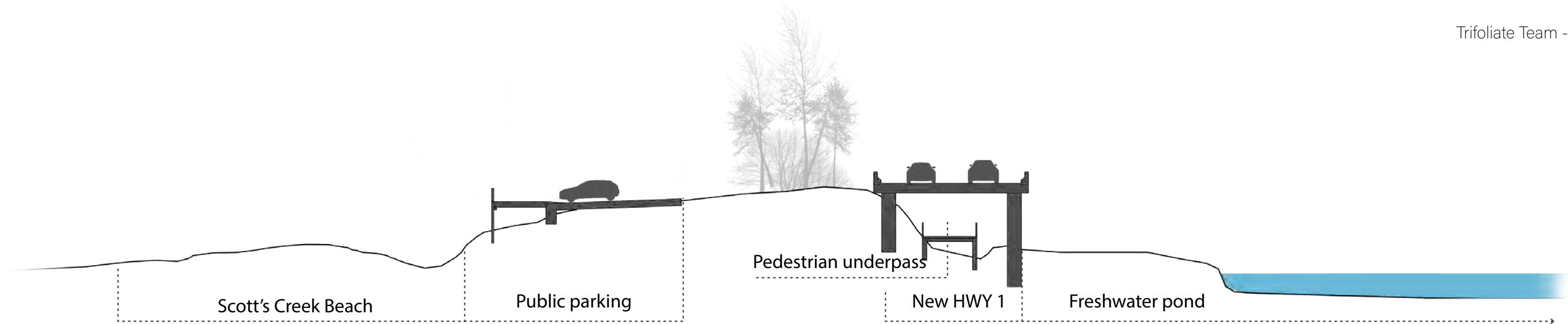
Education

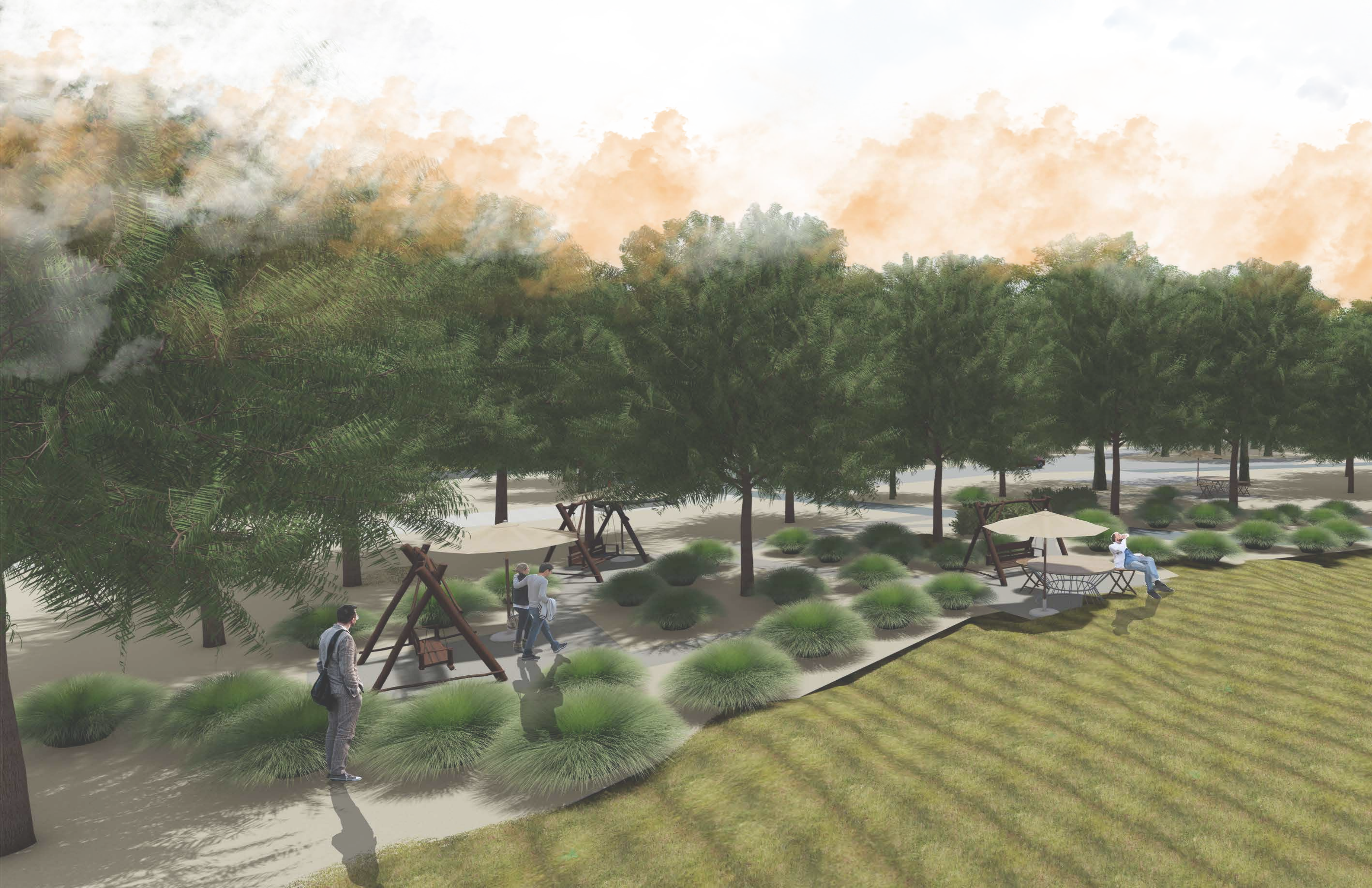
Adaptive society



Estuary Sections





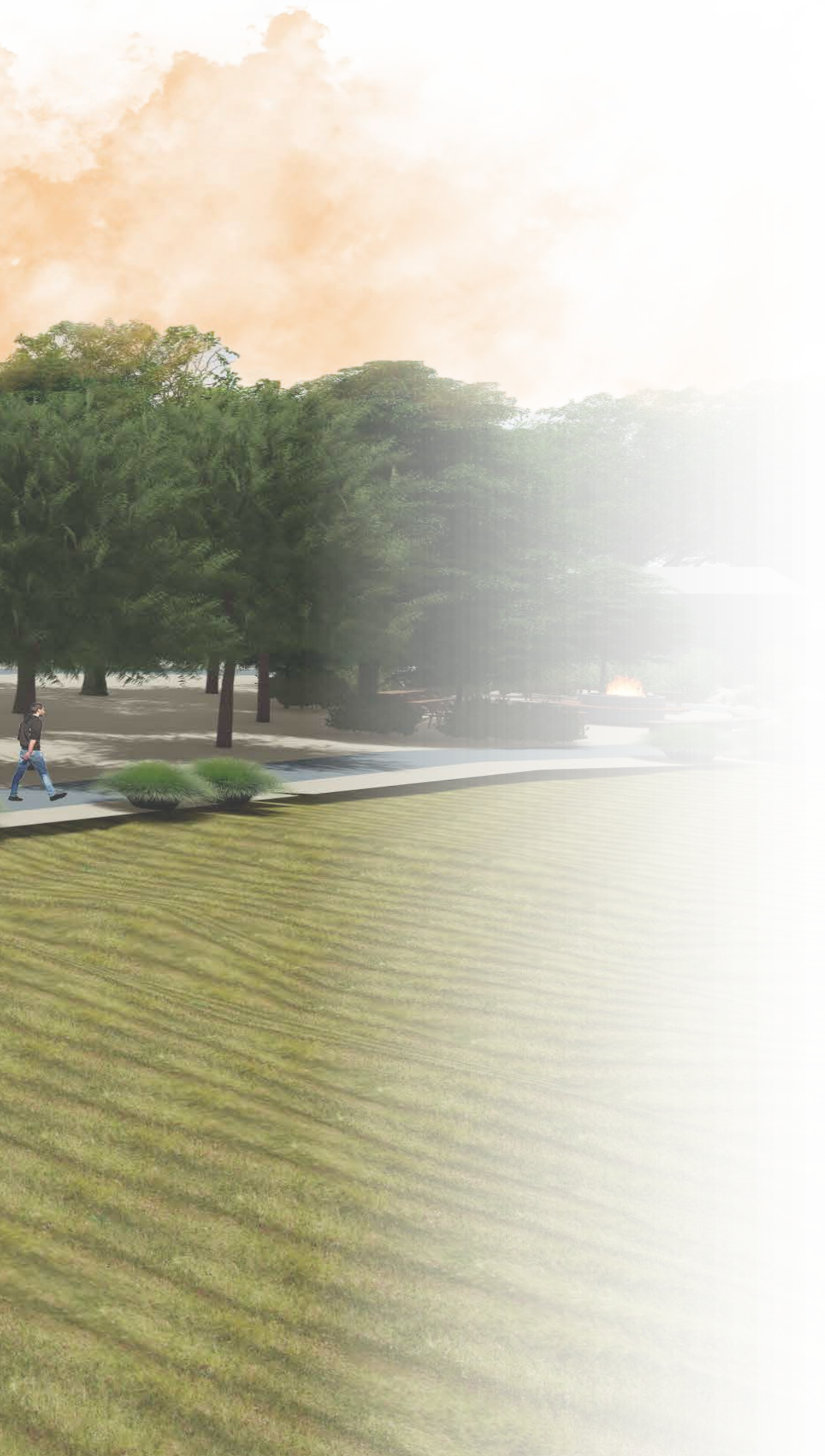




CH 4.1: THE HEARTH

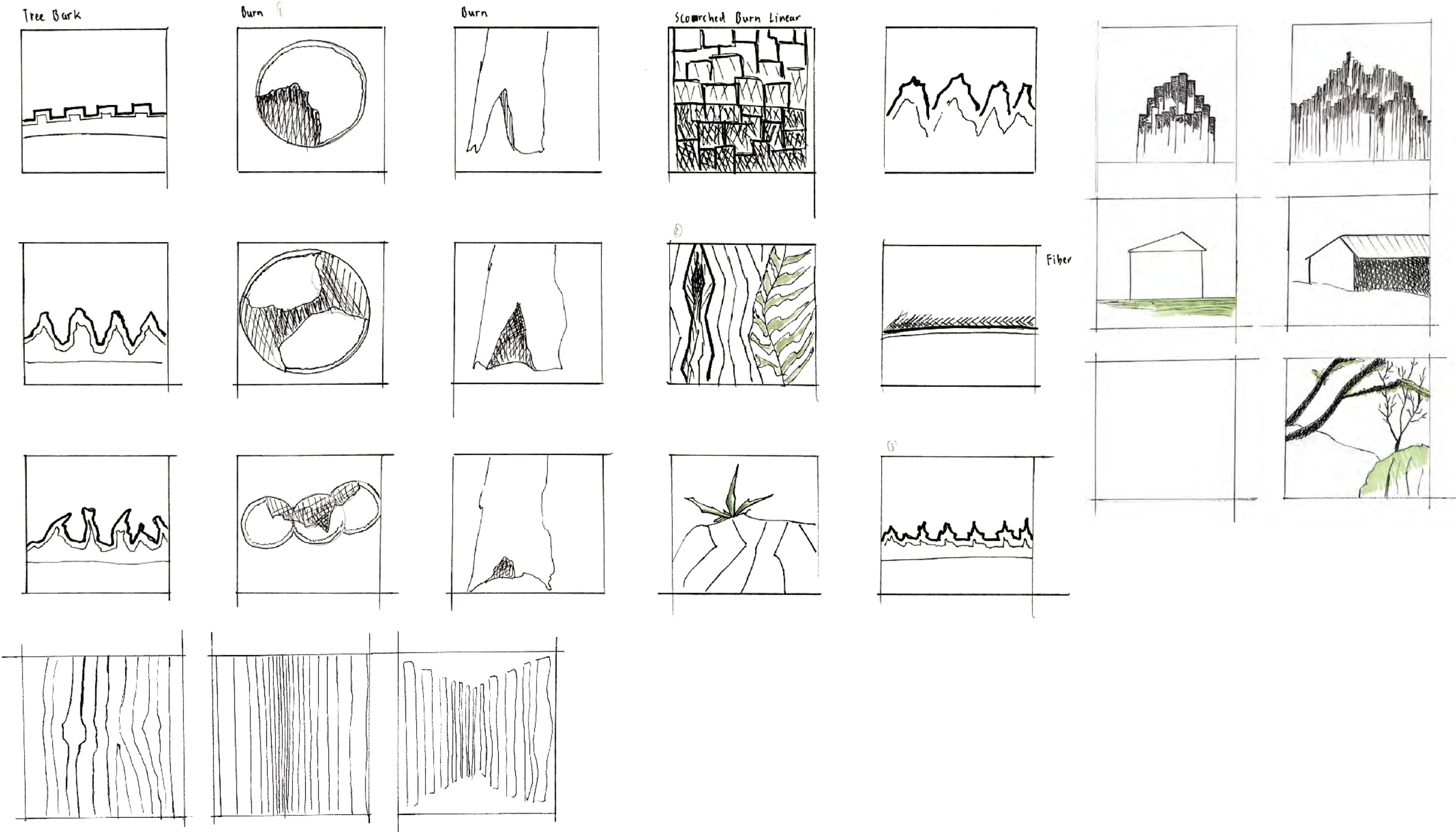
This place will serve as the primary location for temporary housing with spaces up to forty-eight students and have a long-term housing unit located further along the main road.

The Hearth Design Development
Concepts
The Hearth Master Plan
Sections



The Hearth Design Development

Abstracts



Concepts

Play/ Exploration

Student interns are encouraged to explore and venture off into the natural landscape of undistured vegetation located in the back.

Minimizing Impact

Since the CZU fire burned up majority of the area, a important consideration when coming up with this concept was to consider and preserve much of the natural and exisitng landscape

Play/ Exploration



Minimizing Impact



Learning in a new home

As student interns are here to settled in this new home for up to a quarter or two, it can be a challenging experience for anyone. This concetp proritize to provide a place where interns can have a easier time adjusting to the change of being far from home.

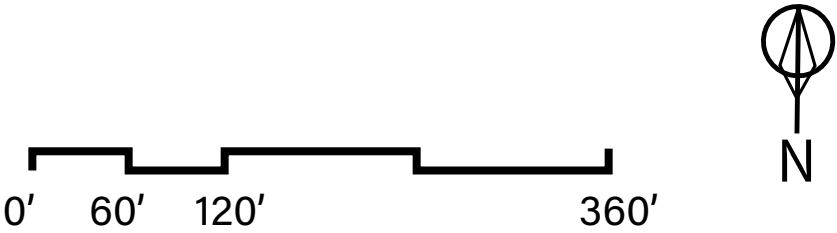


Master Plan



Key:

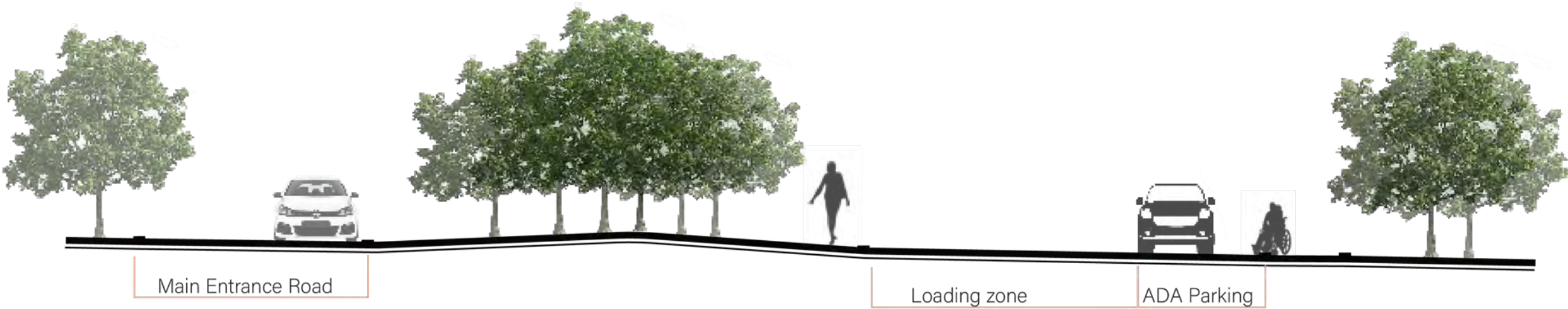
- | | | | |
|---|--------------------------|----|-------------------------------|
| 1 | Pedestrian crossing | 10 | Temporary Housing |
| 2 | Bike and pedestrian path | 11 | Kitchen |
| 3 | Electric Vehicle storage | 12 | Restroom and shower |
| 4 | Garage | 13 | Loading Zone |
| 5 | Creek Access Deck | 14 | ADA Parking |
| 6 | Swinging Benches | 15 | Trail Access points |
| 7 | Picnic Table | 16 | Parking for Long-term Housing |
| 8 | Bonfire | 17 | Deck |
| 9 | Rain Garden | 18 | Long-term Housing |



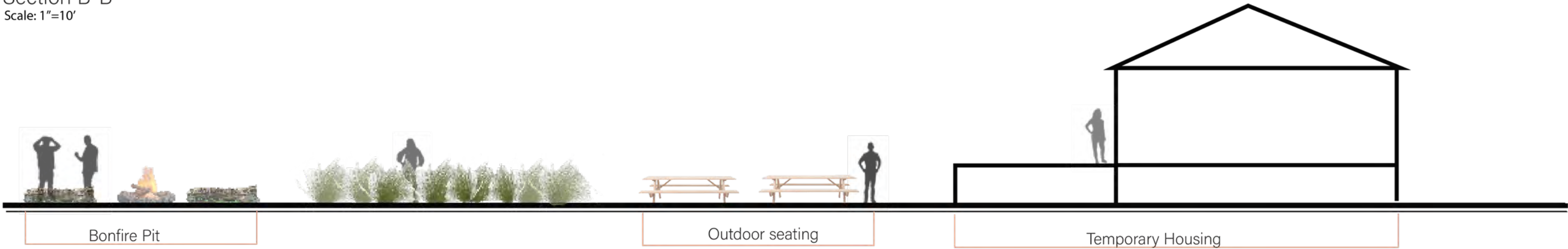
Sections



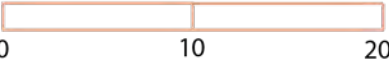
Section A-A'
Scale: 1"=10'



Section B-B'
Scale: 1"=10'



Section C-C'
Scale: 1"=10'






SWANTON PACIFIC
COTTONWOOD AVENUE
RANCH
CAL POLY STATE UNIVERSITY



Conclusion

Throughout this quarter, we have proposed and reviewed iterations of our designs for Swanton Pacific Ranch on the three sites: the Main Office, Estuary and Temporary Housing. We based our findings from our La 438 GIS class to locate site inventory and analysis for each of our sites. We also had the opportunity to visit and camp at Swanton Pacific Ranch for a night. This experience gave us in-person exposure to what a site visit would feel like. From there, we moved on to design abstractions and proposed three unique concepts. After week of critiques and design improvements, we have come down to our overall concept of Adapt.

We hope that through this booklet, you have been able to see and witness the growth in our our quarter long project of working on a unique site.

A group of approximately 15 diverse young people are posing on a wooden structure, possibly a bridge or a climbing frame, in a forest. They are all smiling and looking towards the camera. The structure is made of light-colored wood and has a red sign with the number '10' and the letter '2' on it. The background is filled with green trees and foliage.

Thank you, SPR, for
the great project!

From, LA 403 | Spring 2022 |

Resources

RESEARCH

About. (n.d.). Swanton Pacific Ranch. Retrieved Apr 12, 2022, from <https://spranch.calpoly.edu/about>

California Department of Forestry and Fire Protection (CAL FIRE). (n.d.). Czu lightning complex (including Warnella Fire) incident. Cal Fire Department of Forestry and Fire Protection. Retrieved June 1, 2022, from <https://www.fire.ca.gov/incidents/2020/8/16/czu-lightning-complex-including-warnella-fire/>

Cal Poly. (n.d.). About. Swanton Pacific Ranch. <https://spranch.calpoly.edu/about>

Cal Poly. (n.d.). Natural Resources. Swanton Pacific Ranch. <https://spranch.calpoly.edu/natural-resources>

College of Agriculture, Food, and Environmental Science. (5 Oct, 2021). Swanton Pacific Ranch 5-Year Road Map. Cal Poly. Lindsey, Rebecca. (2020, August, 14). Climate Change: Global Sea Level. Climate.gov. <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>

Indiana University. (n.d.). Adaptation strategies for sea-level rise. Environmental Resilience Institute. <https://eri.iu.edu/erit/strategies/sea-level-rise.html>

Nevitt, Mark. (2020, August 25). Climate Adaptation Strategies: How do we 'Manage' Managed Retreat?. Kleinan Center for Energy Policy.

NOAA. (n.d.). Sea Level Rise Data Download. NOAA Coast. <https://coast.noaa.gov/slrdata/>

Pacific grove, CA. (n.d.). Pacific Grove, CA. https://www.cityofpacificgrove.org/our_city/departments/community_development/planning/stormwater_requirements/lid_techniques___design_guidelines/index.php

Protection. Retrieved June 1, 2022, from <https://www.fire.ca.gov/incidents/2020/8/16/czu-lightning-complex-including-warnella-fire/>

Rain gardens. (n.d.). WARREN CO SWCD. <https://www.warrenswcd.com/rain-gardens.html>

Resource Conservation District of Santa Cruz County. (2022, April 16). Scotts Creek Bridge Replacement & Lagoon Restoration Project. [Powerpoint presented by biologists from the RCD of Santa Cruz to Cal Poly LA 438]

Scaramozzino, J. M. (n.d.). A condensed history: Exploring the history of Swanton Pacific Ranch and Environs. DigitalCommons@CalPoly. Retrieved April 12, 2022, from https://digitalcommons.calpoly.edu/lib_fac/123

<https://storymaps.arcgis.com/stories/0df5d9d31c324a55afe6f0d01846a964>

jollyranchers_SPR_booklet. Retrieved June 1, 2022

huevosrancheros_SPR_booklet. Retrieved June 1, 2022

SPR_FieldStudiesCamp29AprilSmir. Retrieved June 1, 2022

Resources Cont.

IMAGES

Aspect Studios (2014). Frome Street Bikeway. Aspect Studios. <https://www.aspect-studios.com/project/frome-street-bikeway/>

Adimulam, Sweety. (2021, May 31). Realtors hail state plan to make EV charging points mandatory. Free Press Journal. <https://www.freepressjournal.in/mumbai/mumbai-realtors-hail-state-plan-to-make-ev-charging-points-mandatory-in-parking-areas>

Baccharis pilularis. (n.d.). The Watershed Nursery. <https://www.watershednursery.com/nursery/plant-finder/baccharis-pilularis/>

Boardwalks. (2021, October 11). Integrated Recycling. <https://www.integratedrecycling.com.au/boardwalks/>

Cal Poly. (n.d.). Ranch Operations. Swanton Pacific Ranch. <https://spranch.calpoly.edu/operations>

California Invasive Plant Council. (n.d.). Brassica nigra. Cal IPC. <https://www.cal-ipc.org/plants/profile/brassica-nigra-profile/>

California Invasive Plant Council. (n.d.). Carpobrotus edulis. Cal IPC. <https://www.cal-ipc.org/plants/profile/carpobrotus-edulis-profile/>

California Invasive Plant Council. (n.d.). Conium maculatum. Cal IPC. <https://www.cal-ipc.org/plants/profile/conium-maculatum-profile/>

California Invasive Plant Council. (n.d.). Zantedeschia aethiopica. Cal IPC. <https://www.cal-ipc.org/plants/profile/zantedeschia-aethiopica-profile/>

California Native Plant Society. (n.d.). Bee Plant. Calscape. [https://calscape.org/Scrophularia-californica-\(\)](https://calscape.org/Scrophularia-californica-())

California Native Plant Society. (n.d.). Coyote Bush. Calscape. [https://calscape.org/loc-California/Baccharis%20pilularis%20\(Coyote%20Bush\)](https://calscape.org/loc-California/Baccharis%20pilularis%20(Coyote%20Bush))

California Native Plant Society. (n.d.). Poison Oak. Calscape. [https://calscape.org/loc-California/Toxicodendron%20diversilobum%20\(Poisonoak\)](https://calscape.org/loc-California/Toxicodendron%20diversilobum%20(Poisonoak))

California Native Plant Society. (n.d.). San Francisco Rush. Calscape. [https://calscape.org/loc-California/Juncus%20lescurii\(%20\)](https://calscape.org/loc-California/Juncus%20lescurii(%20))

California Native Plant Society. (n.d.). Seep Monkey Flower. Calscape. [https://calscape.org/loc-California/Mimulus%20guttatus\(%20\)](https://calscape.org/loc-California/Mimulus%20guttatus(%20))

California Native Plant Society. (n.d.). Sword Fern. Calscape. [https://calscape.org/loc-California/Polystichum%20munitum%20\(Sword%20Fern\)](https://calscape.org/loc-California/Polystichum%20munitum%20(Sword%20Fern))

California Trout Inc. (n.d.). Coho Salmon. California Trout. <https://caltrout.org/sos/species-accounts/salmon>

Clayton, Anna. (2018, August 10). Bikes. Ethical Consumer. <https://www.ethicalconsumer.org/transport-travel/shopping-guide/bikes>

Edward Robertson - www.edwardrobertson.co.uk. (n.d.). Redwood lumber * Redwood beams, timbers 4x 12x. Lumber Prices * Cedar Siding * Cedar

Hayes, G. & Newby C. (2020, October). Swanton Pacific Ranch Fire Recovery. Swanton

Home sweet home. (n.d.). K&D Landscaping. <https://kndlandscaping.com/portfolio/home-sweet-home/>

Lumber * Redwood Siding - Prices & Pictures!. <https://www.buffalo-lumber.com/redwood-lumber/>

Mimulus aurantiacus (Bush monkey flower). (n.d.). Gardenia.net. <https://www.gardenia.net/plant/mimulus-aurantiacus-monkey-flower>

Miner's lettuce: Claytonia perfoliata SSP. perfoliata (Synonyms: Claytonia perfoliata Var. angustifolia, claytonia perfoliata Var. perfoliata, Limnia perfoliata, Montia perfoliata SSP. perfoliata, Montia perfoliata

National Park Service. (n.d.). Tidewater Goby and Candlefish. National Park Service. <https://www.nps.gov/redw/learn/nature/tidewater-goby-and-candlefish.htm>

Native Americans: Pre-columbian california to 18th century. Calisphere. (n.d.). Retrieved May 31, 2022, from <https://calisphere.org/exhibitions/3/items/ark:/13030/tf6p3008w7/>

Nickerson, S. (2019, June 15). About the Top of the Rock Golf Cart Tour in Branson. Sengerson. <https://www.sengerson.com/top-rock-golf-cart-tour-branson/>

NOAA. (2022, February 17). Steelhead Trout. NOAA Fisheries. <https://www.fisheries.noaa.gov/species/steelhead-trout>

Oregon Conservation Strategy. (n.d.). Northwestern Pond Turtle. Oregon Conservation Strategy. <https://www.oregonconservationstrategy.org/strategy-species/northwestern-pond-turtle/>

Pacific madrone. (2021, November 1). Native Foods Nursery. <https://nativefoods nursery.com/pacific-madrone/> Pacific Ranch. <https://spranch.calpoly.edu/CZU-Lightning-Complex-Fire-Recovery>

Peglar, Tori. (2021, September 13). Bringing Back the Frogs of Yosemite. Yosemite National Park Trips. <https://www.myosemitepark.com/park/conservation/fish-and-amphibians/>

Pinus attenuata (knobcone pine) description - The gymnosperm database. (n.d.). The Gymnosperm Database:. https://www.conifers.org/pi/Pinus_attenuata.php

Pinus radiata - Monterey pine. (n.d.). Trees of Santa Cruz County. <https://treesofsantacruzcounty.blogspot.com/2011/03/pinus-radiata-monterey-pine.html>

Portland Audubon. (n.d.). Snowy Plover Patrol. Portland Audobon. <https://audubonportland.org/get-involved/community-science/snowy-plover-patrol/>

Quercus agrifolia. (n.d.). Oregon State University, Department of Horticulture | Landscape Plants | Oregon State University. <https://landscapeplants.oregonstate.edu/plants/quercus-agrifolia>

Ranch and Environs. DigitalCommons@CalPoly. Retrieved April 12, 2022, from https://digitalcommons.calpoly.edu/lib_fac/123

Southern bulrush (California bulrush), Schoenoplectus californicus. (n.d.). <https://nathistoc.bio.uci.edu/plants/Cyperaceae/Schoenoplectus%20californicus.htm>

Var. perfoliata). (n.d.). Flora and Fauna Northwest. <https://science.halleyhosting.com/nature/gorge/5petal/purslane/claytonia/miner.htm>

ICONS

Burning Tree Vectors by Vecteezy. <https://www.vecteezy.com/free-vector/burning-tree>

Dog Walking Icon Vectors by Vecteezy <https://www.vecteezy.com/free-vector/dog-walking-icon>

Tractor Icon Vectors by Vecteezy. <https://www.vecteezy.com/free-vector/tractor-icon>

Trees Vectors by Vecteezy. <https://www.vecteezy.com/vector-art/358892-tree-clipart-set>

Weather Icons Vectors by Vecteezy. <https://www.vecteezy.com/free-vector/weather-icons>

GIS

County of Santa Cruz. Santa Cruz LIDAR. Santa Cruz County, Maxar, Microsoft

Esri. Sea Level Rise. Airbus DS, USGS, NASA, CGIAR, N Robinson

Merced County Association of Gov. Swanton vegetation. California State Park, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS



Trifoliate Team