

# UNION BAY NATURAL AREA SITE: DESCRIPTION AND ASSESSMENT

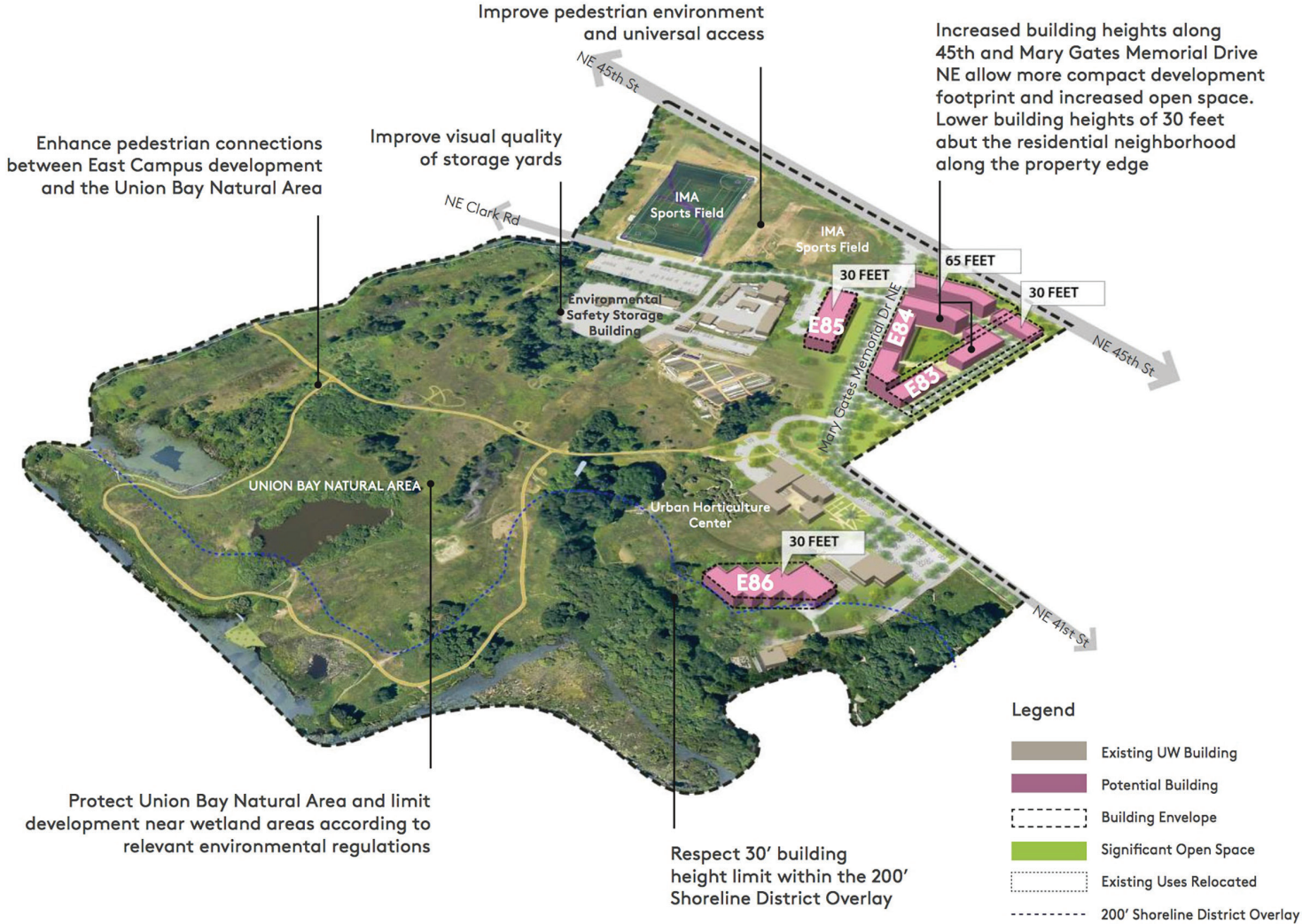


# CAMPUS MASTER PLAN ASSESMENT

Development goals and site restrictions identified in the 2018 UW Seattle Campus Master Plan.

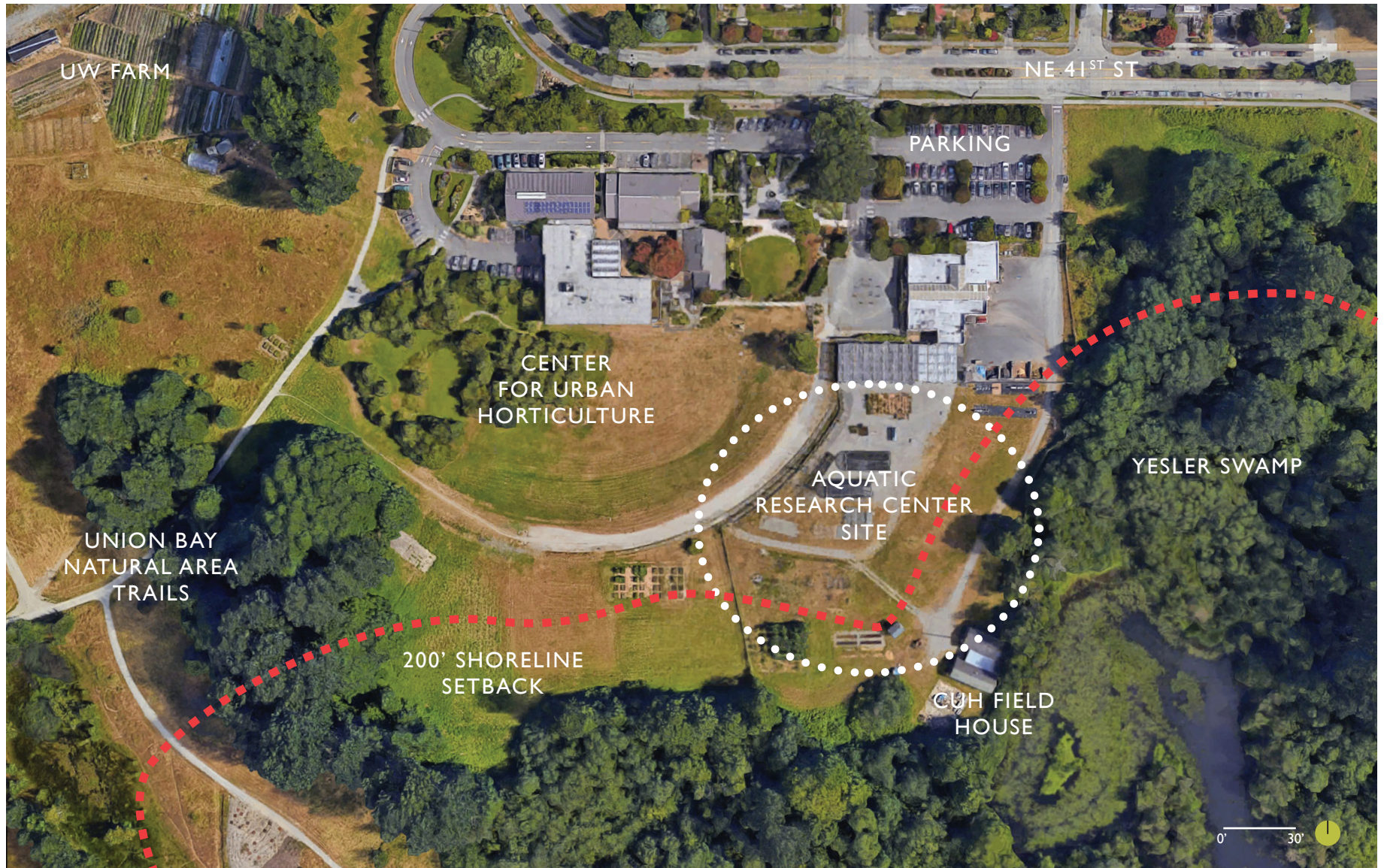
## DEVELOPMENT ZONE O

Figure 182. Graphics are for Illustrative Purposes Only



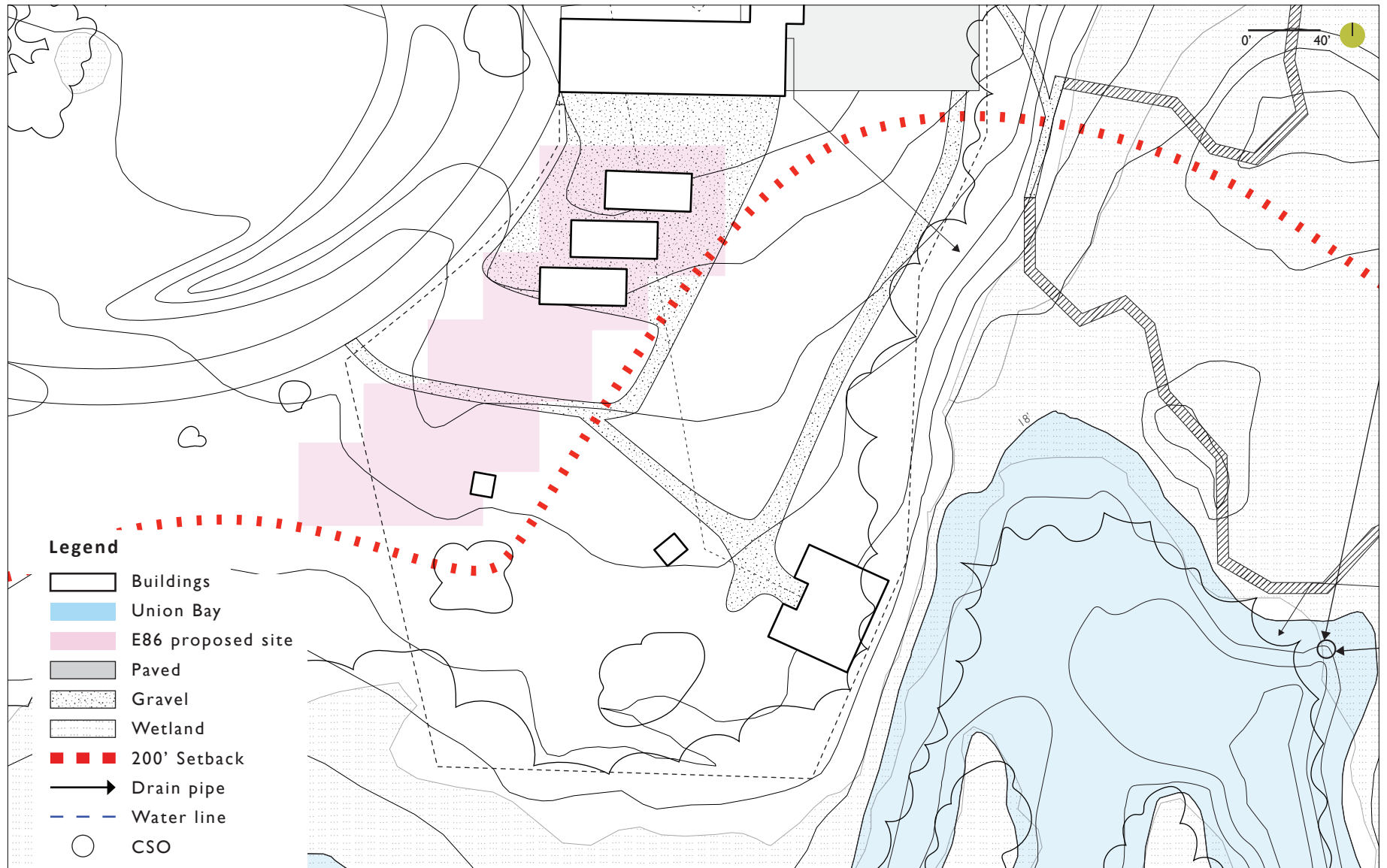
## AERIAL VIEW

Google Earth aerial showing the existing site features and conditions. The E86/ARC site is embedded in a thriving academic and environmental ecology.



## EXISTING SITE CONDITIONS

The E86 site is supported by existing infrastructure, but constrained by a 200' shoreline setback.



## SITE PHOTOS: E86 SITE

Images from in and around the E86 site.



Figure 1. View of the site from the Center for Urban Horticulture deck, looking east.



Figure 2. On the east side of the site, looking south along the service road towards the Field House.



Figure 3. View from the main path, looking northeast towards the Douglas Research Conservatory.



Figure 4. View from the main path, across from the Aquatic Research Center site, over the event lawn towards Merrill Hall at the Center for Urban Horticulture.



Figure 5. The McVay Courtyard in the Center for Urban Horticulture.



Figure 6. A boardwalk trail in Yesler Swamp, down the slope to the east of the Aquatic Research Center site.

## SITE PHOTOS: UBNA

The neighboring Union Bay Natural Area (UBNA) is a unique and beautiful place. As E86 is the only development site here, this is a great opportunity for SAFS to claim it.



Figure 1. Looking northeast towards the E86/ARC site, across the water from an UBNA trail.



Figure 2. Looking west towards Husky Stadium. This could be a walking commute from the Link Light Rail station! (Photo by UW Botanic Gardens)



Figure 3. UBNA is a rich bird habitat. Here, a redwing blackbird perches on a cattail. (Photo by UW Botanic Gardens)



Figure 4. Summer wildflowers. (Photo by UW Botanic Gardens)



Figure 5. View southeast from a UBNA trail, looking across Lake Washington to the 520 bridge.



Figure 6. Ecological restoration research being conducted at UBNA by UW faculty and students.

## SITE MATERIALS

The site is characterized by thin, hard grids embedded in the thick organic layers of the ground, farm, gardens, and wetland.



Figure 1. Center for Urban Horticulture trellis wall



Figure 2. UBNA remnant apple tree in bloom



Figure 3. UW Farm shed wall



Figure 4. Yesler Swamp detail



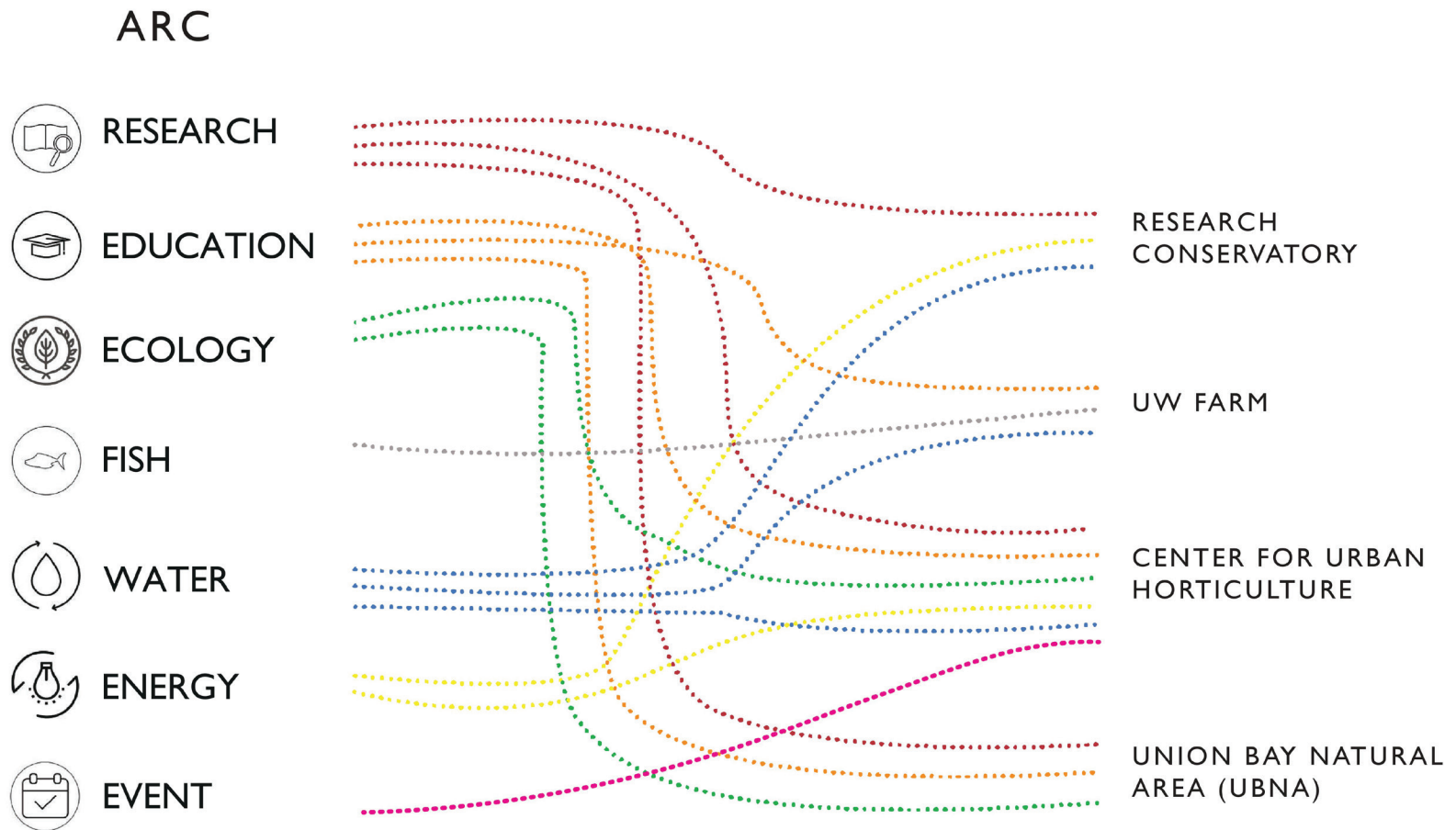
Figure 5. Research greenhouses and gravel



Figure 6. Nursery ground condition

## PROGRAM OVERLAPS

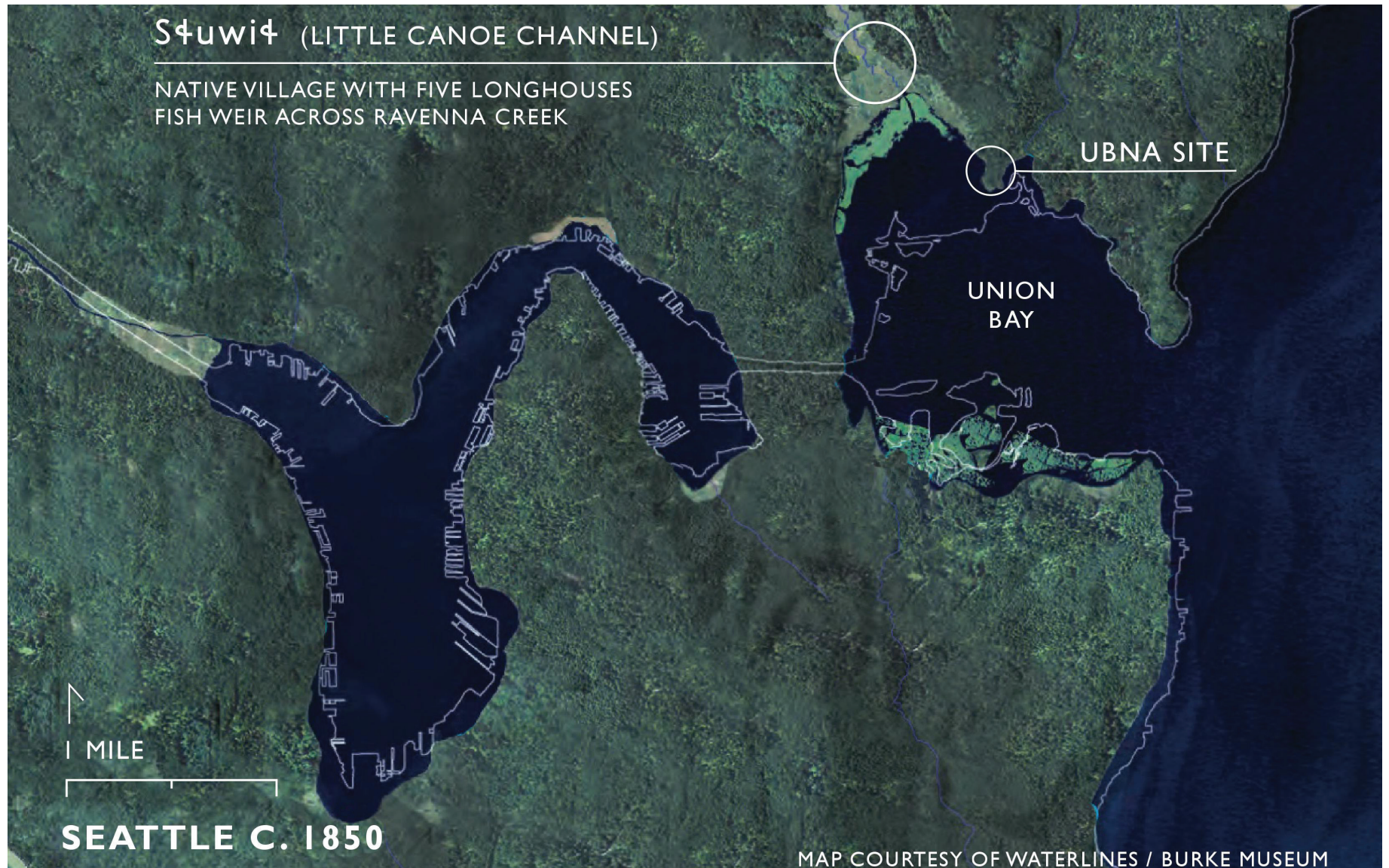
The new Aquatic Research Center can tie into the existing site functions, form new relationships, and catalyze new program opportunities.





## SITE HISTORY: PRE-1850

Before European contact, the site sat on the edge of what we now call Union Bay, inhabited and used by native peoples. Nearby, a year-round village and fish weir existed on Ravenna Creek. This map also shows the historic and current lakeshore. The Washington Ship Canal, built in 1916, lowered the lake level by 9 feet, exposing what we now call the Union Bay Natural Area.



## SITE HISTORY: 20<sup>th</sup> CENTURY

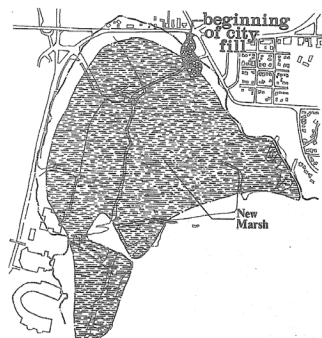
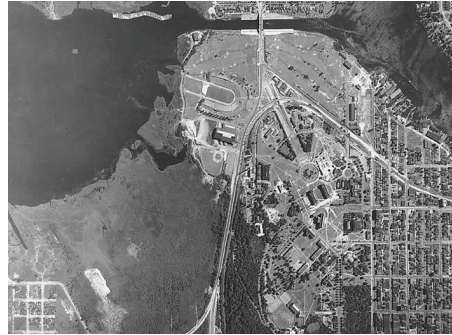
1916: Washington Ship Canal (at the Ballard Locks) is cut, lowering the Lake Washington water level by 9 feet.

1926: Union Bay Natural Area was used as a landfill

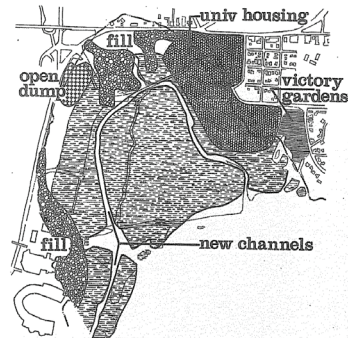
1949: A housing development was built on the east side, the current Aquatic Research Center site

1962: The west side began to be developed as part of UW campus

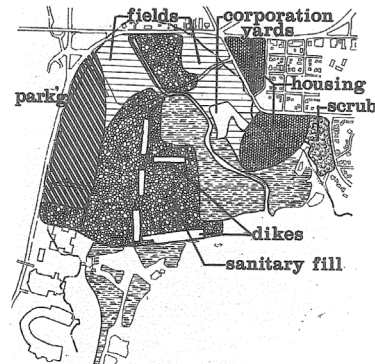
1974: Restoration efforts started on the landfill



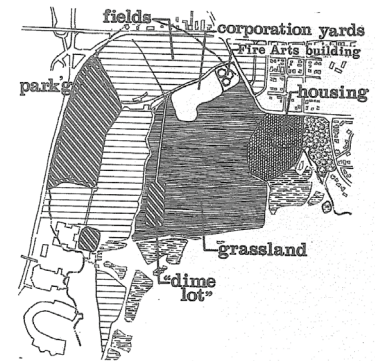
1926



1949



1962



1974

## OPPORTUNITIES FROM HISTORY

Historical aspects of the site provide rich opportunities for future development.



### Ecological Aspect

Landfill -> Restoration

High opportunity for utilizing stormwater management techniques and other sustainable energy saving systems

### Educational Aspect

Restoration process

Education and research

### Native American

Connection with Little Canoe Channel village

Collaboration with the Muckleshoot Tribe

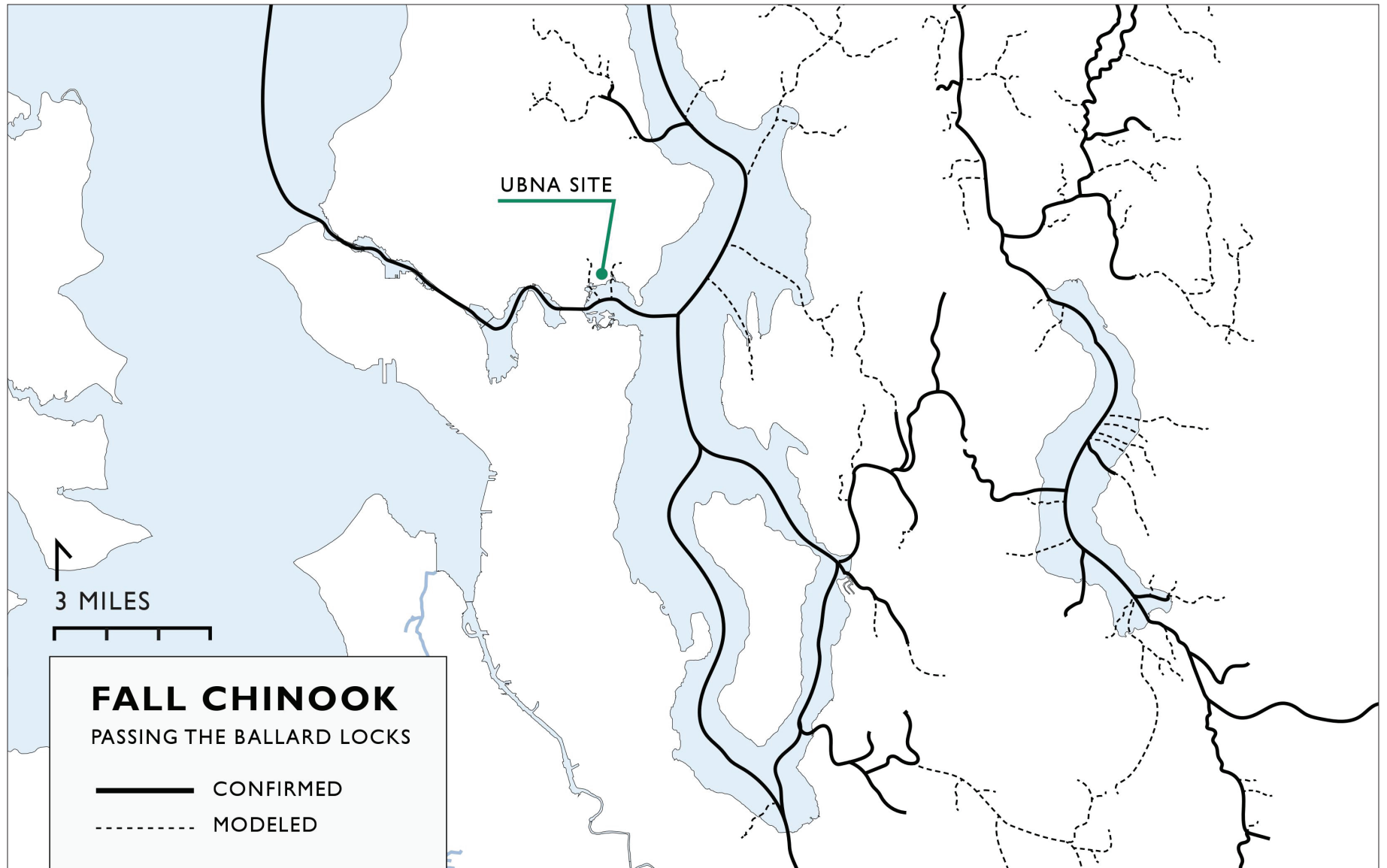
### Housing Development

Site has already been compacted and disturbed, so there is space for further restoration

## SALMON CONTEXT MAP

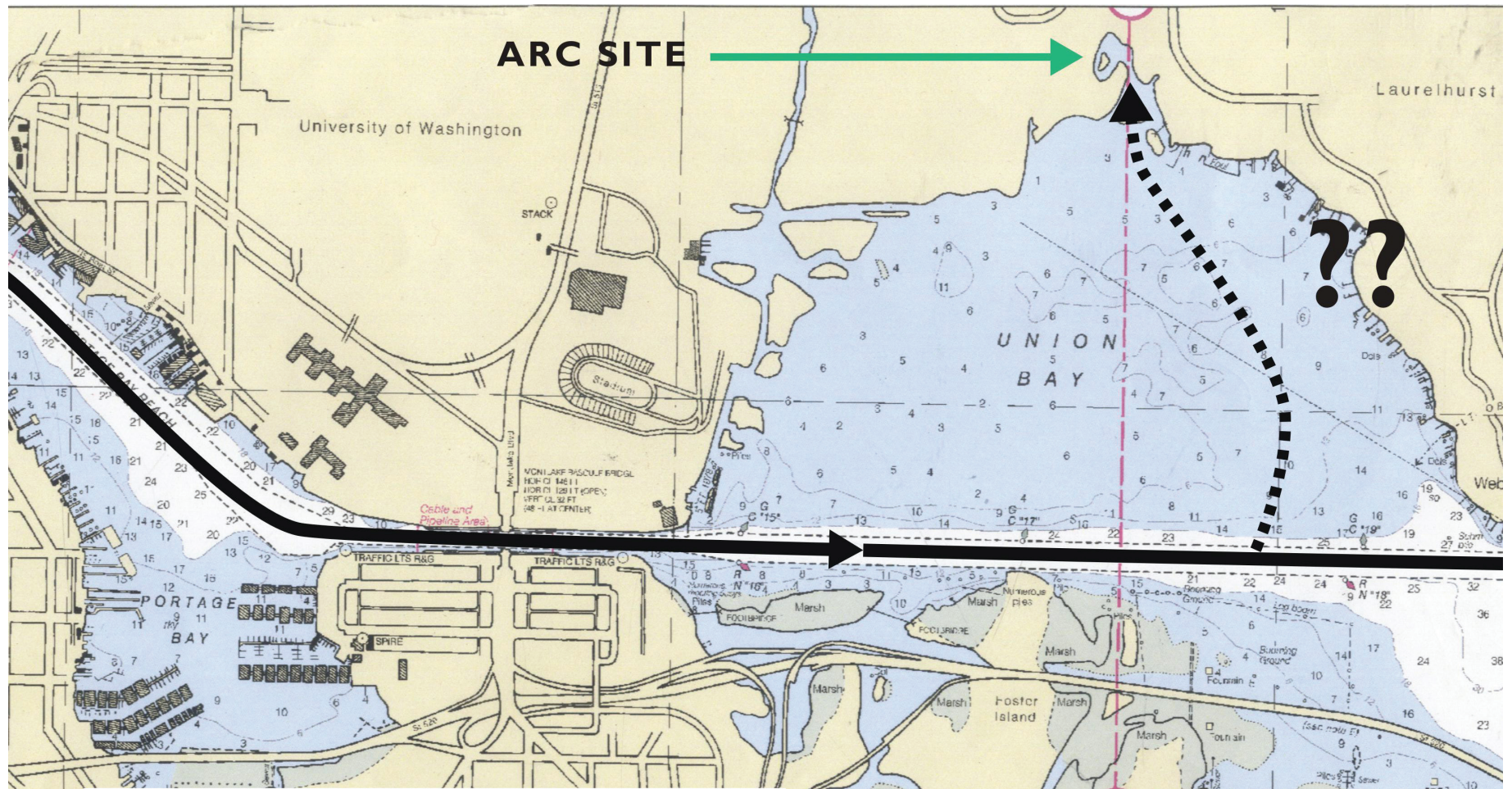
Fall Chinook runs that return home through the Ballard Locks. Historic runs existed near the UBNA site.

(Adapted from WDFW Salmonscape)



## ADULT RETURN 'COLD PATH'

Adult salmon need cold water as they swim home. They currently use the deep water of the ship channel to pass through Union Bay. How will the higher temperatures and shallow water be overcome?



Adapted from NOAA depth map.

This challenge also provides opportunities for engineers and SAFS researchers to innovate. Water temperatures are rising everywhere in salmonid habitats, especially in urban areas. Can UW lead on this issue?

## KEY OPPORTUNITIES AND CHALLENGES

### OPPORTUNITIES

- Beautiful, Unique Site
- Campus Master Plan Compatible
- Compatible with UW Botanic Gardens and UBNA Vision
- Site Function Overlaps: Fish Waste, Ecological Research, Education, Public Outreach, etc.
- Urban Aquatic Ecosystem
- Easy Access by Car, Bus, Foot, Bike, etc.
- Easy Parking!
- Outreach and Education
- “Green” Technology Possibilities
- Secure UBNA for SAFS, Enhance UBNA as Urban Eco-Zone
- UW Water Rights Can Be Transferred to the Site

### CHALLENGES

- Shoreline / Conservancy Preservation Permitting
- Across Campus from SAFS Buildings
- Adult Return Cold Path

## TEAM 3: IMMERSION

BY NINA MROSS

### DESIGN VISION

To be immersive and permeable in experience and performance. To be regenerative and adaptable, to be a good neighbor. To do no harm, to thicken and re-grow. To be useful and inspiring, to be a great experience. To connect and catalyze interactions between the people, wildlife, land, water, plants, foods, and processes of the Puget Lowlands.

### KEY WORDS:

- Immerse
- Innovate
- Catalyze
- Connect



### DESCRIPTION

The Aquatic Research Center (ARC) at Union Bay Natural Area (UBNA) is an immersive new building and landscape complex that ties deeply into the existing site program and infrastructure while providing new opportunities and much-needed space for SAFS and stakeholder needs and visions.

The ARC fans out from the natural axis created by the shoreline and ties in to the existing circulation and use patterns on the site. A cluster of two buildings and a pavilion are connected by a central plaza, which leads directly to the public homing pond and the fishway landscape beyond. The larger building holds 8,500ft<sup>2</sup> of flexible interior lab space, as well as storage, offices, and restrooms on the first floor, and space for an aquaponics lab as well as the lab manager's office and overlook deck on the second floor.

The smaller building holds an indigenous-run café and an auditorium to be shared with the Center for Urban Horticulture (CUH). The Smokehouse Pavilion is a place for First Foods and traditional salmon

processing techniques, as well as outdoor events of all kinds. The CUH Field House is converted into a pump house and public education and interpretation building, and a new boardwalk connects across from the UBNA trails to the Yesler Swamp trails.

The landscape is used as public space and research space, as areas of prairie, forest edge, upland edge, and streambank plantings are created and maintained by plants grown on-site by CUH. The entire landscape has opportunities for informal play, and visitors are invited to interact with the land, plants, and interpretive features. Signage, wayfinding, and art integrated into the landscape guide visitors and contribute to learning about aquatic ecosystems, watershed health, Northwest and salmon related culture, and stakeholder goals and activities. In particular, artisan-made sculptures inspired by indigenous fish traps and fish baskets are used throughout the landscape for play, seating, and interpretation.

Unlike a traditional hatchery, ARC will be active throughout the year. A conventional homing pond is only used in spring for juvenile fish release, and in fall for returning adult fish. Here, the pond is used for stormwater detention in the rainy winter, and is the site of art installations as part of the Seattle Design Festival in the summer, after it's emptied and cleaned.

Through these interventions, the new ARC meets and exceeds the needs of the stakeholders and the community, with flexible research infrastructure, activated, vibrant public space, new collaborative and inter-disciplinary programming, and a deep connection to the salmon culture of the region.

## CASE STUDY: Center For Urban Horticulture (CUH)

VARIOUS DESIGNERS, 1984- PRESENT

The existing buildings, garden, and public space at the CUH, next to the proposed Aquatic Research Center site.

- Most important case study
- Greenhouse typology
- Small buildings around a central courtyard

Forms and screens at CUH (author photos)





## CASE STUDY: Regen Village

EFFEKT ARCHITECTS, CONCEPT, 2016

A concept design for a closed-loop village relying on solar and aquaponics.

- Greenhouse typology
- Small building clusters create public space
- Aquaponics integrated into system

Render Views (effekt.dk)



## CASE STUDY: Portland Japanese Garden

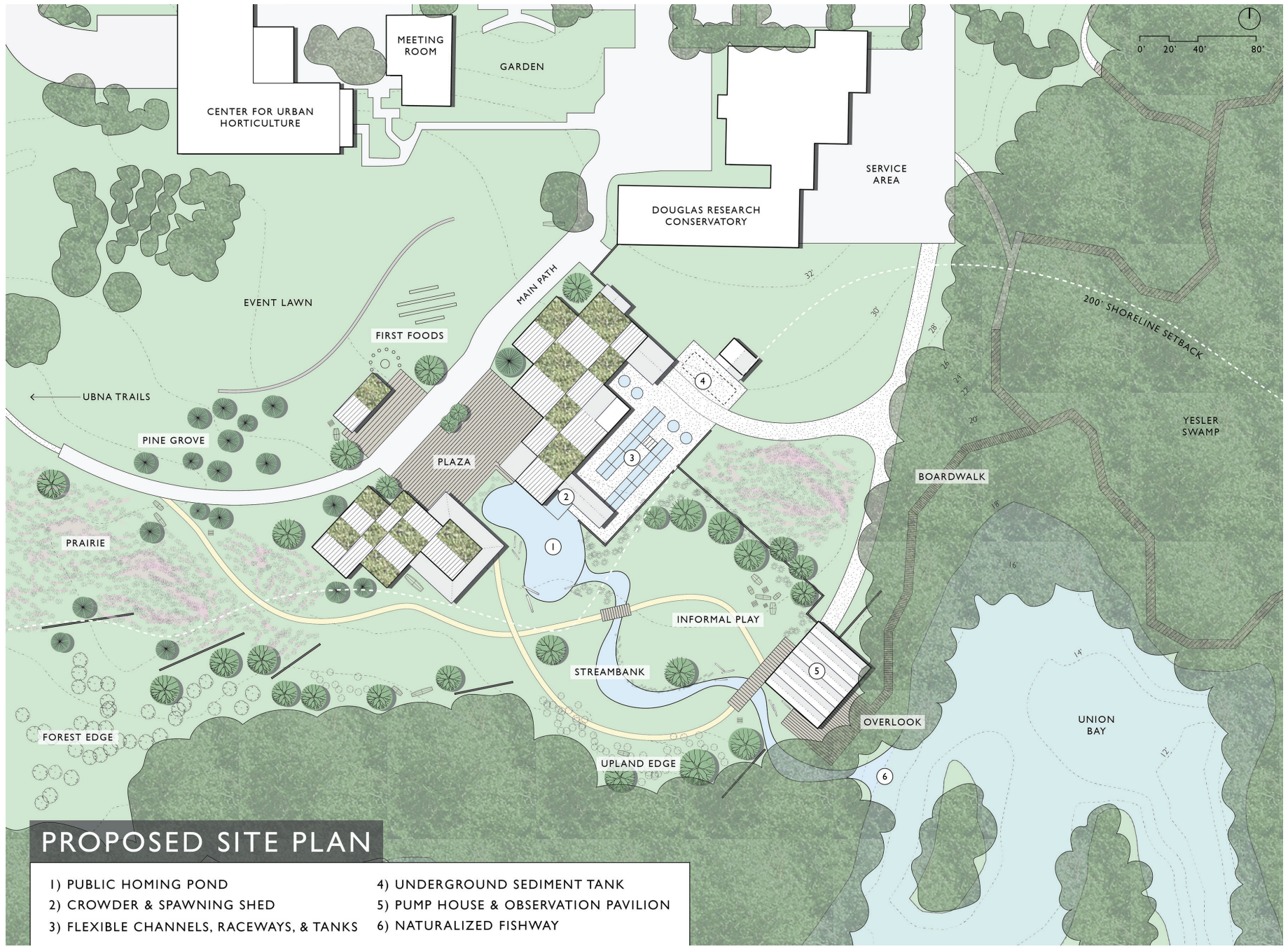
KENGO KUMA AND ASSOCIATES, 2017

A central plaza and new buildings for the Portland Japanese Garden.

- Interpretation and outreach project added to existing public garden
- Small buildings around a central plaza



Culture Village Plaza (architecturalrecord.com)



# PROPOSED SITE PLAN

- 1) PUBLIC HOMING POND
- 2) CROWDER & SPAWNING SHED
- 3) FLEXIBLE CHANNELS, RACEWAYS, & TANKS
- 4) UNDERGROUND SEDIMENT TANK
- 5) PUMP HOUSE & OBSERVATION PAVILION
- 6) NATURALIZED FISHWAY

BIRD'S EYE VIEW LOOKING NORTH



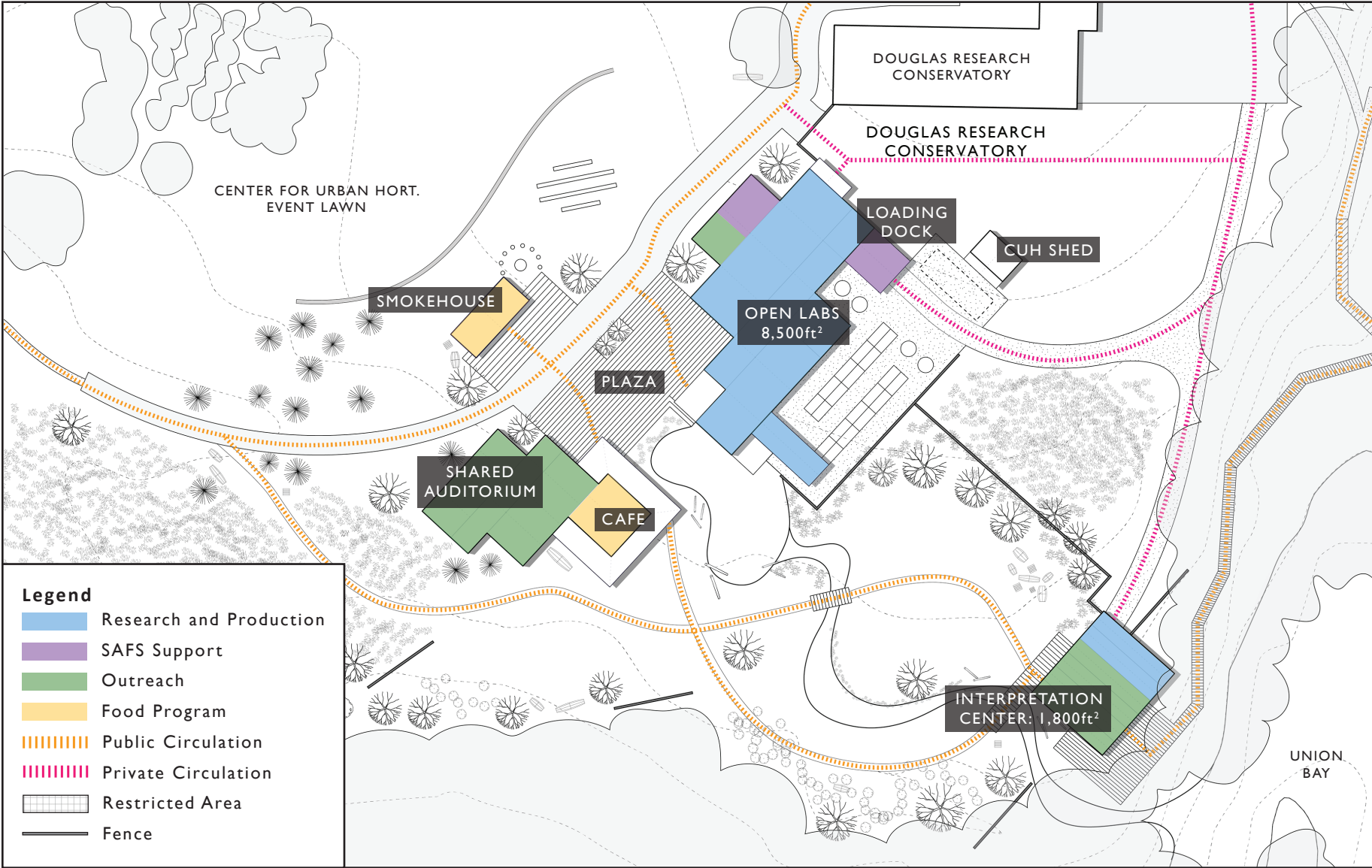
# VIEW SOUTHEAST INTO THE PLAZA

Looking across the Aquatic Research Center entrance plaza to the homing pond, with Union Bay beyond.



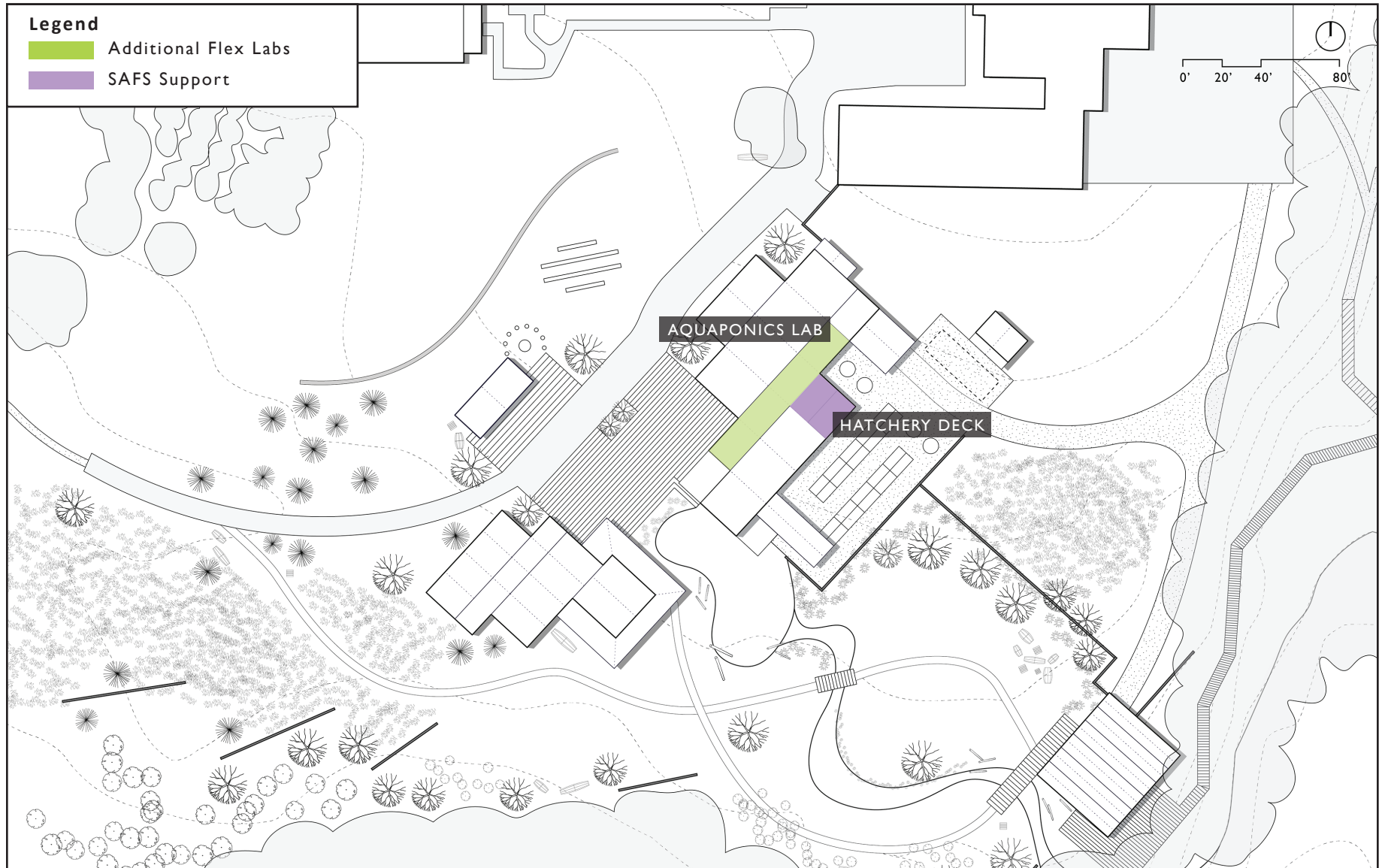
# SITE & 1ST FLOOR PLAN AND PROGRAM

The new buildings contain large flexible lab space, outdoor hatchery and lab facilities, and public outreach along with public food programs and outdoor public space.



## 2ND FLOOR PLAN AND PROGRAM

The small second floor holds an aquaponics lab and a hatchery observation deck.



## FISH FLOW DIAGRAM

The salmonid homing mechanism, called 'natal philopatry,' drives the yearly cycle of renewal. The flexible ARC facilities accommodate various salmonid species' different timings and needs.

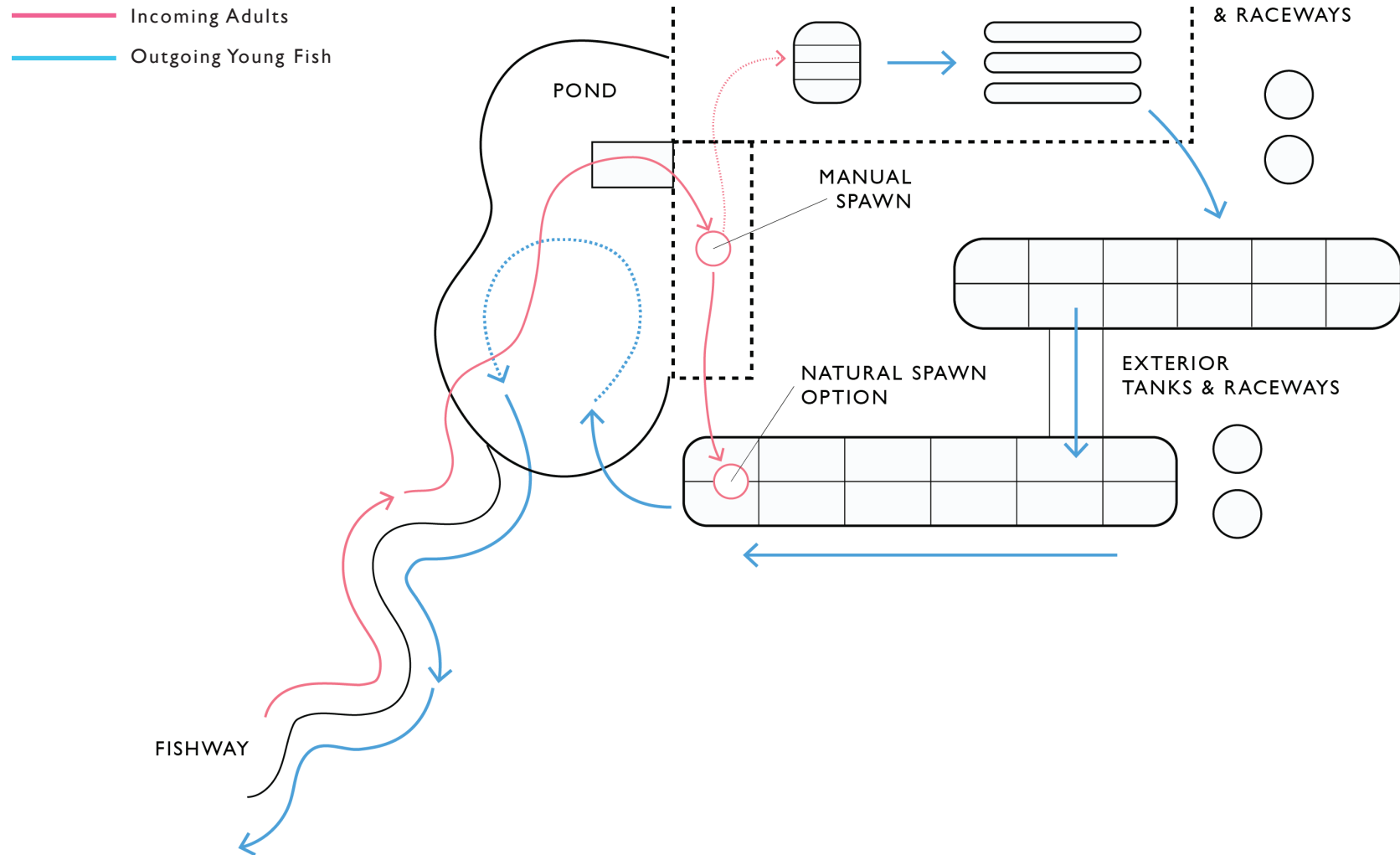
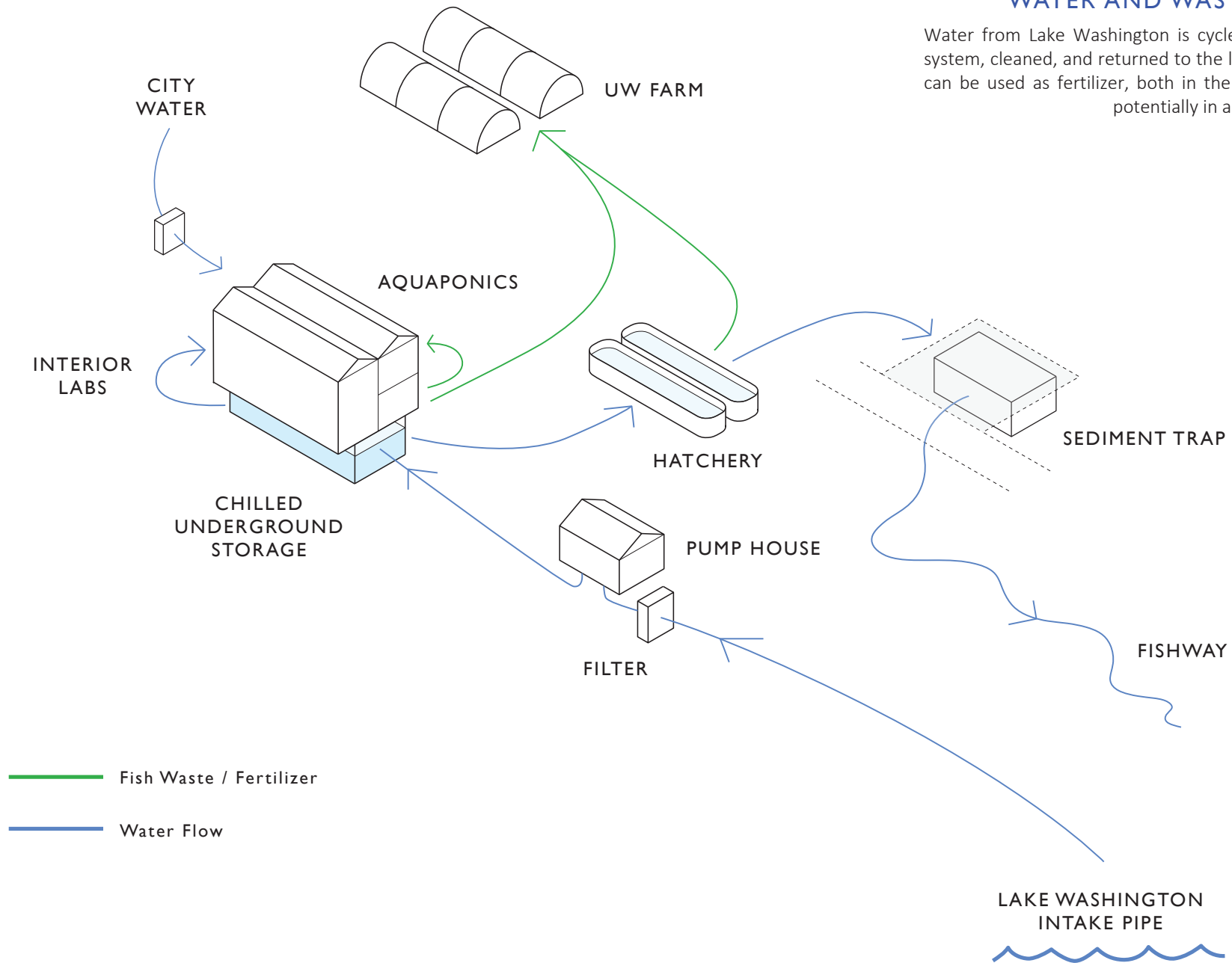


DIAGRAM NOT TO SCALE



## WATER AND WASTE FLOWS

Water from Lake Washington is cycled through the system, cleaned, and returned to the lake. Fish waste can be used as fertilizer, both in the UW Farm and potentially in aquaponics labs.



BUILDING MATERIALS



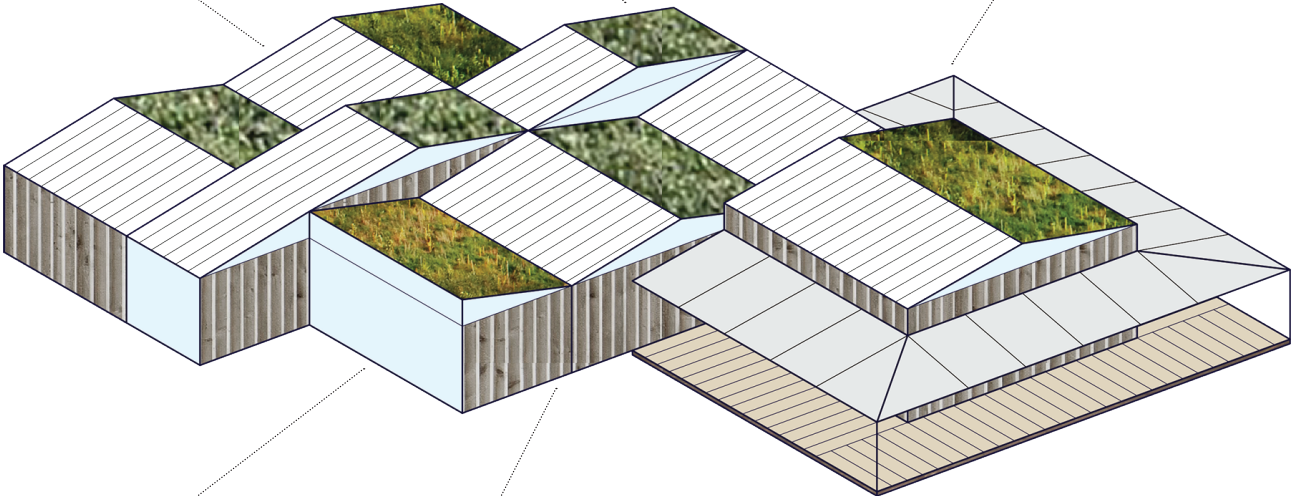
SOLAR POWER STRIPS



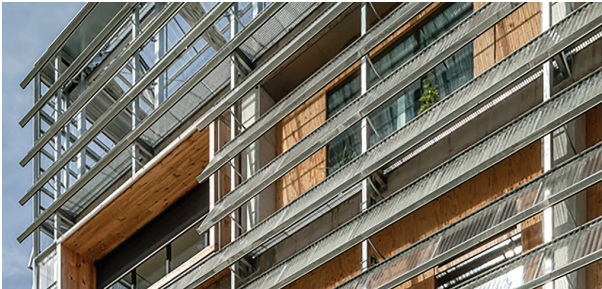
GREEN ROOF



RECYCLED ALUMINUM ROOF



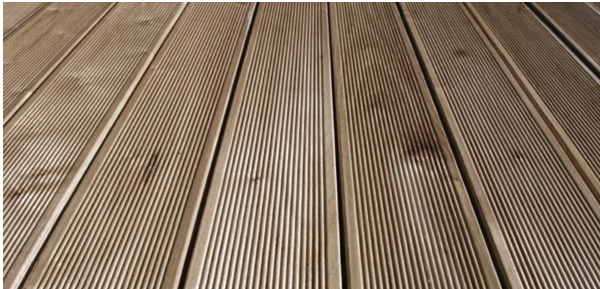
GREENHOUSE FACADE



CEDAR SLATS

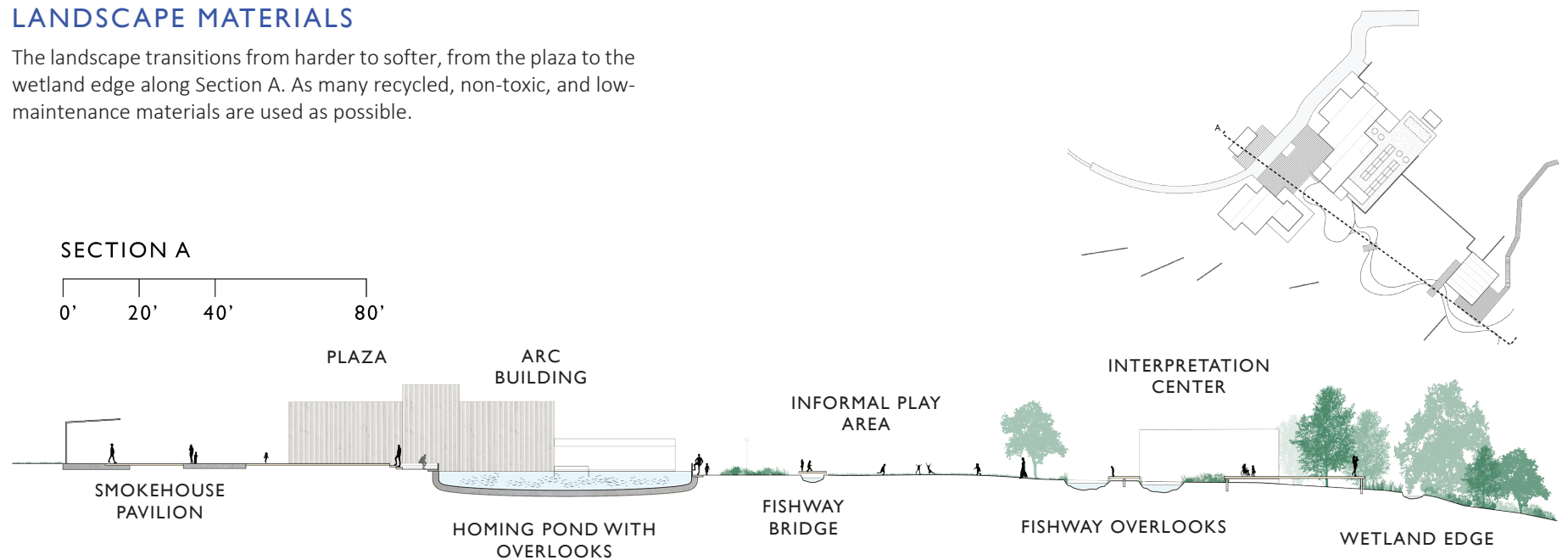


BLACK LOCUST DECKING

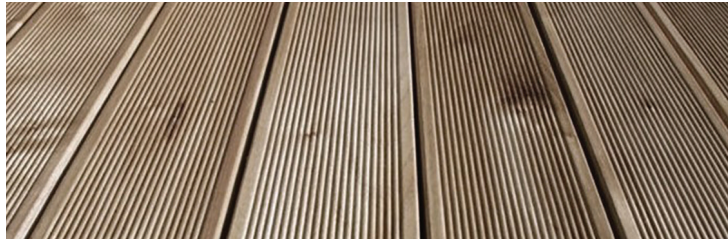


## LANDSCAPE MATERIALS

The landscape transitions from harder to softer, from the plaza to the wetland edge along Section A. As many recycled, non-toxic, and low-maintenance materials are used as possible.



BLACK LOCUST DECKING



RECYCLED PORCELAIN MIX PATHWAYS



ECO-TURF



CONCRETE POND



ECO NIGHT LIGHTING



BOULDERS AND LOGS AROUND STREAM



## PLANTING PALETTE

Planting zones subtly define the landscape areas and enhance site character.

### FOREST EDGE



Alder



Willow



Poplar



Shore Pine

### PRAIRIE



Camassia



Festuca



Western Buttercup



Garry Oak

### FIRST FOODS



Salmonberry



Huckleberry



Thimbleberry



Acorns

### UPLAND EDGE



Nootka Rose



Salal



Pearly Everlasting

### STREAMBANK



Rush



Sedge



- 1) Cut-out panels by Lucy Galloway
- 2) Boardwalk and interpretation signs by Publik
- 3) Wayfinding sign by ASG Architects
- 4) Salmon sculptures by Paul Amey
- 5) Leaf sculptures by Peter M. Clark

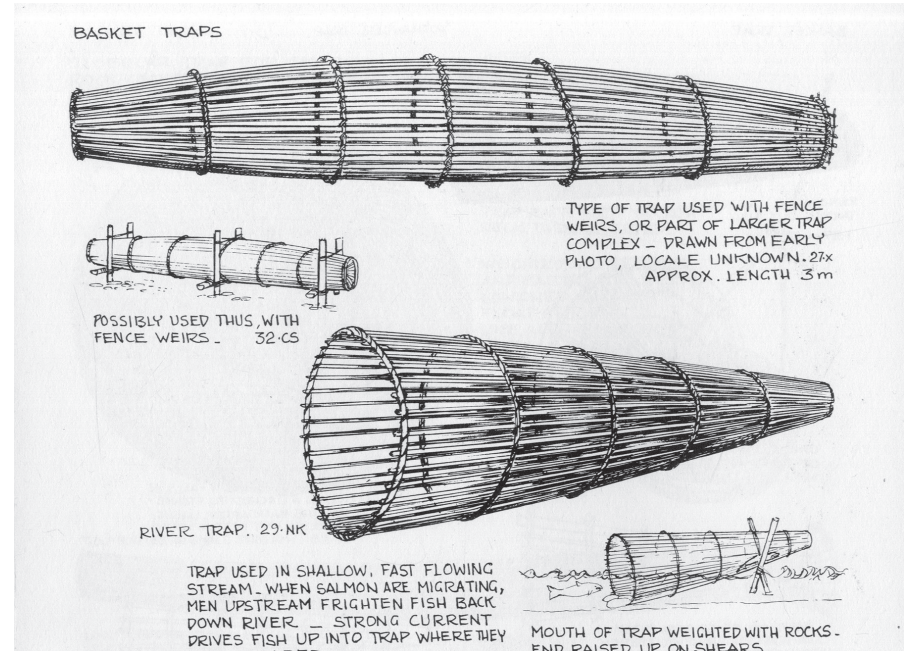
## INTERPRETATION PRECEDENTS

Signage, wayfinding, and art integrated into the landscape guide visitors and contribute to learning and interpretation about aquatic ecosystems, watershed health, and stakeholder goals and activities.



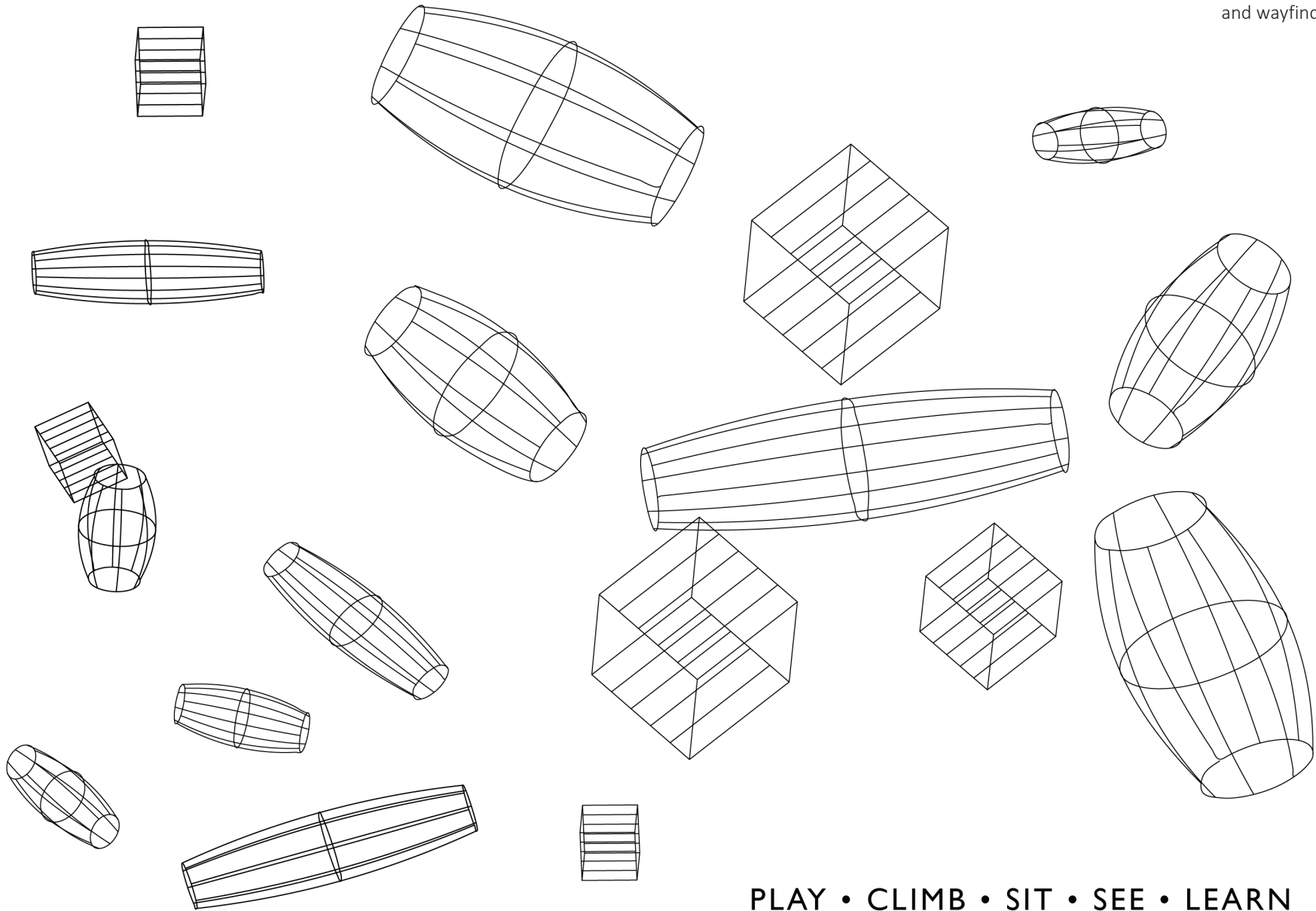
## NATIVE FISH BASKETS

Traditional fish baskets and traps made by local native peoples provide inspiration and interpretation.



## FISH TRAP BASKETS

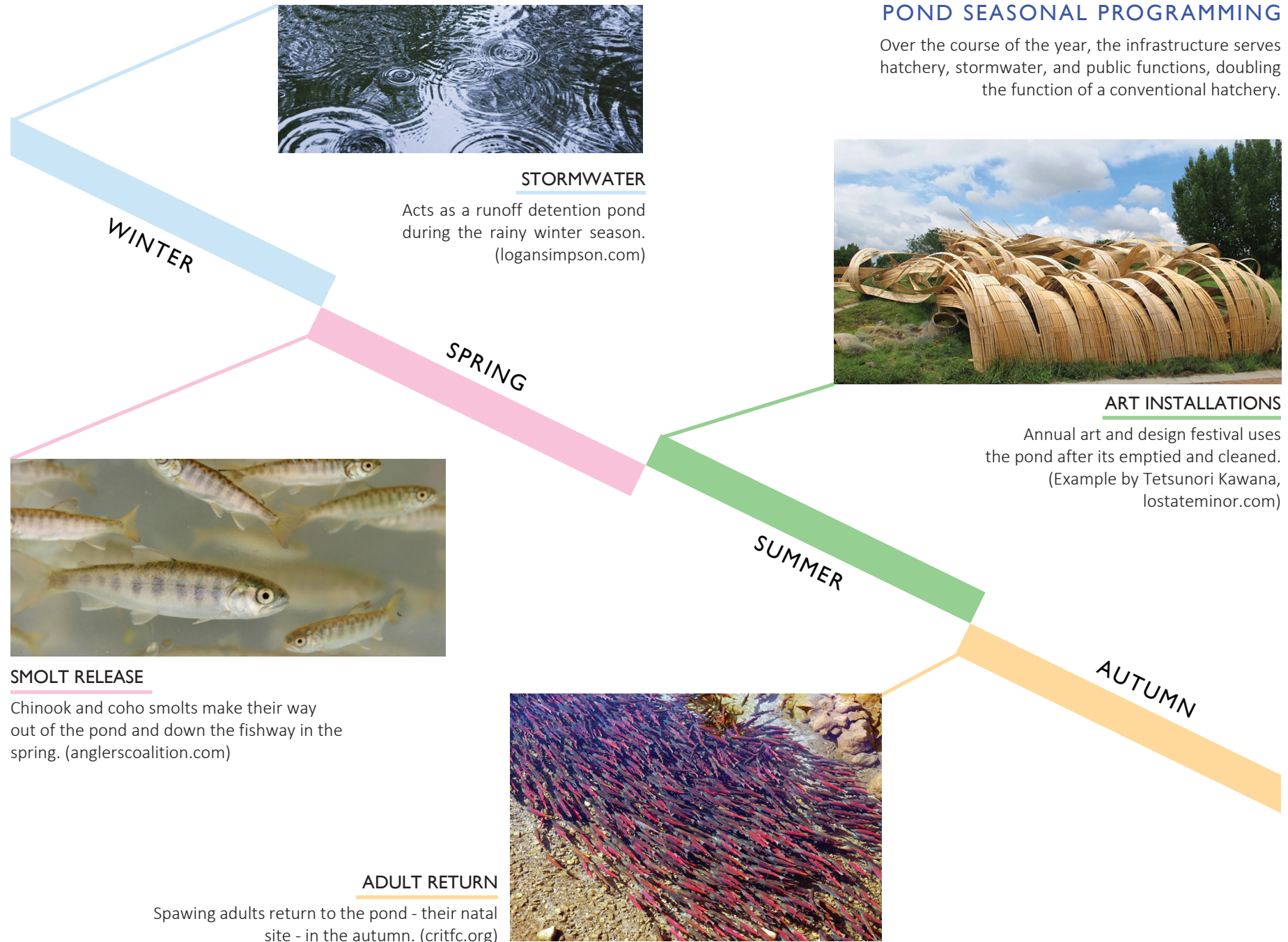
Artisan-made sculptures of fish traps are scattered throughout the landscape for play structures, seating, and wayfinding.



**PLAY • CLIMB • SIT • SEE • LEARN**

## POND SEASONAL PROGRAMMING

Over the course of the year, the infrastructure serves hatchery, stormwater, and public functions, doubling the function of a conventional hatchery.





BIRD'S EYE VIEW LOOKING NORTH

