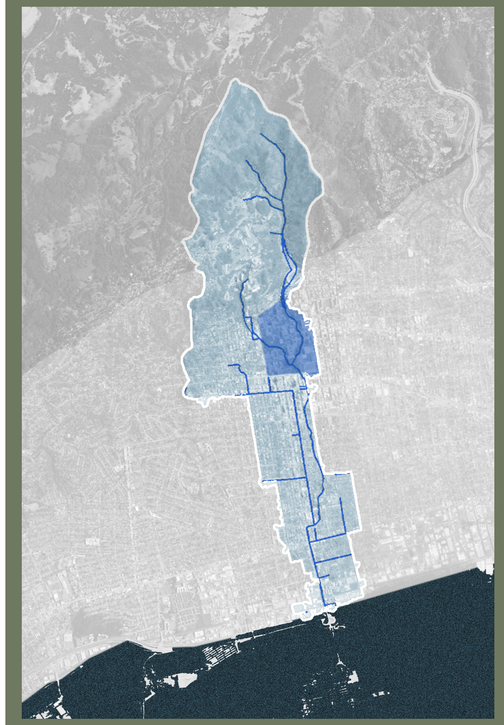
GREEN GATEWAYS

Revitalizing key entry points on the UC Berkeley campus with green infrastructure



Strawberry Creek Watershed

VISION FRAMEWORK

As a forward-thinking university, UC Berkeley is committed to advancing innovative, campus-wide climate initiatives in its latest master plan. The Green Gateways team expanded upon these initiatives and focused on how to further animate the masterplan through experiential and educational green infrastructure. We saw opportunities at three campus entry points situated near Strawberry Creek to improve stormwater infrastructure while simultaneously restoring riparian buffers, revitalizing social nodes, and educating students and public passersby of their connection to the greater Strawberry Creek watershed.

We selected three campus entry points, or "gateways," that interface with campus and the City of Berkeley. Sather Gate connects Telegraph Ave to South Campus, North Gate connects a residential neighborhood the creek's debut on campus, and West Gate connects a dense urban grid to the creek's campus exit. Siting our interventions in entrances that connect to active pedestrian corridors ensures high visibility and diverse engagement with our designs. For each site, we explore different approaches to stormwater management unique to the existing historical, social, ecological, and hydraulic conditions.

THE IMPACT

741,000 gal/yr of potable water saved by transitioning underutilized lawn spaces to rain gardens, swales, and native planting at the North Gate intervention.

95% of rooftop runoff detained and repurposed at site interventions, and thus reducing impervious runoff to creek.

55% erosive shear stress reduction at the North Gate outfall due to the introduction of check dams by changing the reach grade from 6% to 3%

15,300 ft² of underutilized lawn removed and replaced with native and adaptable plant species within the North Gate location.

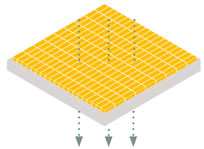
27% reduction of existing impervious pavement at the Sather Gate site by implementing modular semi-permeable paving.

37% average annual runoff reduced due to site interventions implemented at the Sather Gate site, such as the vegetated swales and permeable paving.

34,300 ft² of restored soils and native plant communities at the West Gate site intervention.

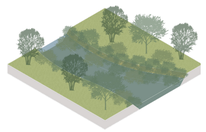
44% of canopy cover increased 10 years after installation of the West Gate floodplain intervention

DESIGN STRATEGIES



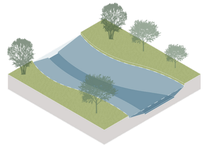
A PERMEABLE PAVING

by replacing impervious surfaces, like asphalt and concrete, with permeable paving systems, we **reduce the amount of surface runoff and increase the amount of localized surface infiltration.**



B NATIVE PLANTING

prioritizing native and adaptive plant species not only reduces the need for extensive irrigation, but **improves soil health, increases infiltration rates, and reduces erosion**, especially along the banks of Strawberry Creek.

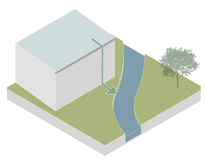


C EXPANDED FLOODPLAIN

restoring lateral connectivity to the historic floodplain is crucial for supporting **increased biodiversity, absorbs and slows down flood water, and allows for groundwater recharge.**

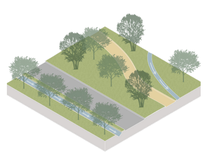
D CHECK DAMS

introducing check dams along drainage channels **reduces the flow velocity, alleviating the potential for erosion downstream**. Check dams also assist with sediment control, infiltration, and act as a temporary



E ROOFTOP CATCHMENT

by redirecting water runoff from building rooftops, we reduce **impervious stormwater runoff and utilize redirected water** for irrigation for nearby tree pits, rain gardens, and swales.



F RUNNEL

bring **visual attention to the stormwater interventions and direct pedestrians** to Strawberry Creek.

MASTER PLAN

SITE 1 - SATHER GATE

PERMEABLE PAVING

ROOFTOP CATCHMENT

RUNNELS

NATIVE PLANTING

-COLLECT RAIN FROM ROOFTOPS REDIRECT TO RAINGARDENS FOR INFILTRATION

-REDIRECT WATER TO RAINGARDENS FOR INFILTRATION

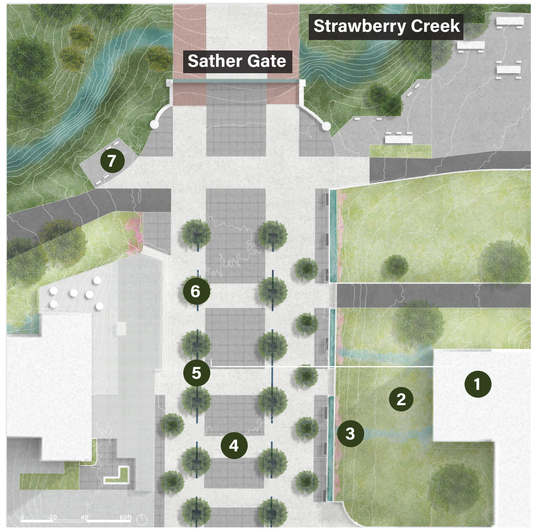
-DETAIN EXCESS RAIN IN BIOSWALES

-INCREASE STORMWATER PERMEABILITY UNDER PLAZA

-CAPTURE 'OVERFLOW' IN RUNNELS AND TREEWELLS

LEGEND

- Rooftop catchment 1
- Rain garden 2
- Bioswale 3
- Permeable paving 4
- Runnels 5
- Tree well 6
- Permeable platform 7



SITE 2 - WEST GATE

EXPANDED FLOODPLAIN

NATIVE PLANTING

- SEQUENTIALLY REMOVE EUCALYPTUS TO OPEN SPACE FOR NATIVE PLANTING

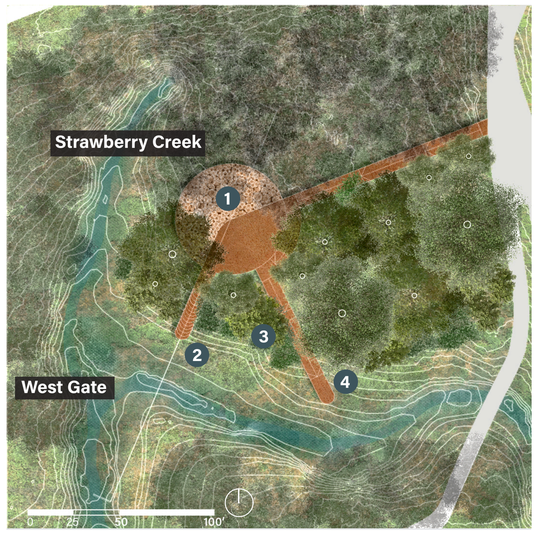
-EXPAND FLOODPLAIN TO FORM NATIVE RIPARIAN 'BENCH' TO REDUCE EROSION

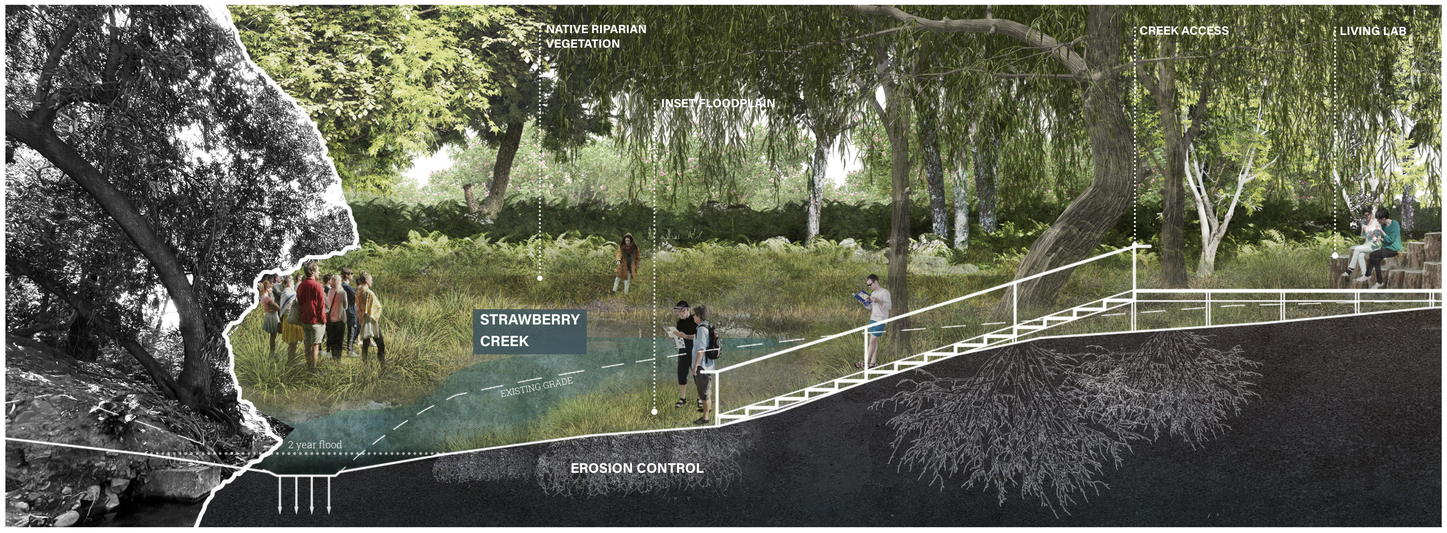
-INCREASE PUBLIC ACCESS TO THE CREEK WITH RAMPS AND STEPS

-CREATE OPPORTUNITIES FOR OUTDOOR CLASSROOMS NEAR THE CREEK.

LEGEND

- Living lab 1
- Expanded floodplain 2
- Restored native vegetation 3
- Creek access point 4





SITE 3 - NORTH GATE

CHECK DAMS

ROOFTOP CATCHMENT

EXPANDED FLOODPLAIN

NATIVE PLANTING

-COLLECT RAIN FROM ROOFTOPS REDIRECT TO RAINGARDENS

-REDIRECT WATER TO RAIN GARDENS FOR INFILTRATION

-ESTABLISH CHECK DAMS TO DECREASE VELOCITY OF CREEK AND PROVIDE AQUATIC HABITAT

-EXPAND FLOODPLAIN TO FORM NATIVE RIPARIAN 'BENCH' TO REDUCE EROSION

-BUILD AMPHITHEATER SEATING AROUND THE CREEK OUTFALL

LEGEND

- Rain garden platform 1
- Rain garden 2
- Creek w/ check dams 3
- Expanded floodplain 4
- Creek amphitheater 5