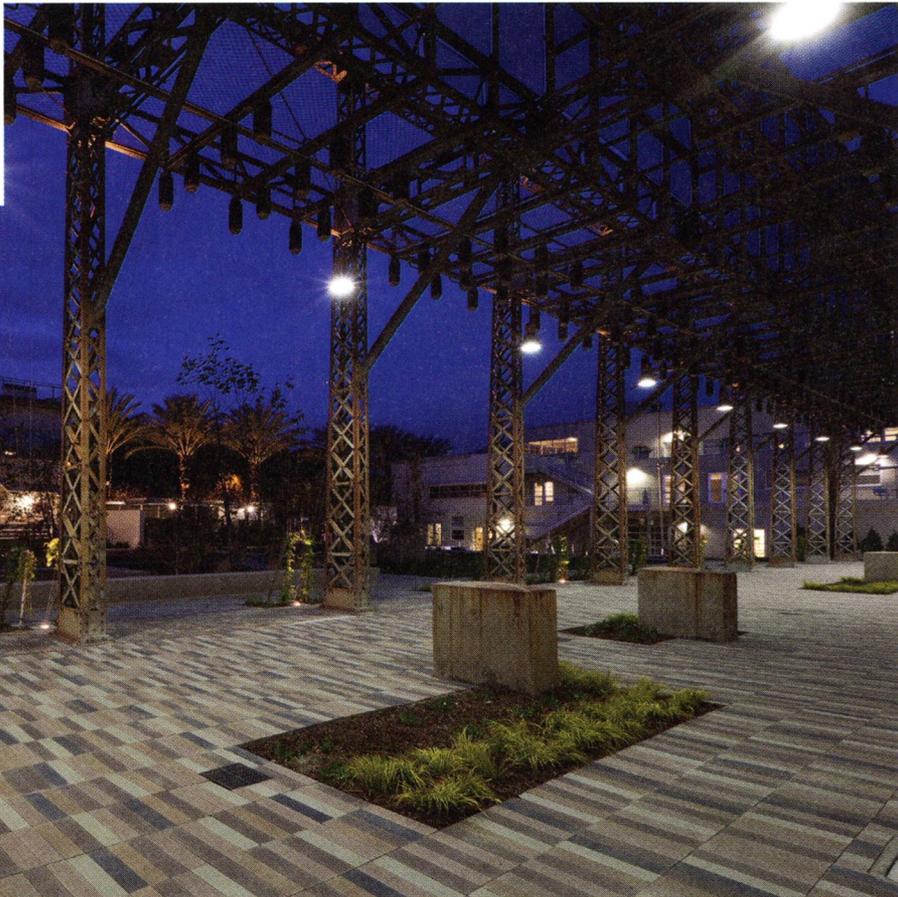


TOTALLY
TRANSFORMED



A FORMAL DESIGN EVOLVES INTO A MODEL OF WHAT TO DO WITH WATER.

BY JOANNE FURIO

ABOVE
At night, a hulking former electrical substation takes on a friendlier presence after being turned into a kind of super trellis at Burbank Water and Power.

The first design that AHBE Landscape Architects of Los Angeles did for the Burbank Water and Power (BWP) utility plant now seems sort of quaint. In 2003, the firm, led by Calvin Abe, FASLA, was hired for a beautification project around a parking lot and building where utility customers come to pay their bills in person at the plant, which borders a waterway, the Burbank Western Channel, across a freeway from downtown Burbank. The project, designed by Kiku Kurahashi, ASLA, an associate at AHBE, became a lush, formal design with roses, kangaroo paw, and turf. “We weren’t even thinking of water infiltration or stormwater mitigation,” Kurahashi says. “None of that was even in our language at the time.”

It’s funny to hear that now, because as AHBE has kept working with BWP and its general manager, Ron Davis, the projects have grown larger and more ambitious and, ultimately, have become all about conserving and cleaning water. Davis wants the plant to be a model of “long-term solutions to the problems of our industry,” he says. “How do we generate the water and power our customers need with the least impact on the environment?”

AHBE began to find the answers and did so in the context of a quickly rising awareness about the relationship between water and power in California, where 20 percent of electricity is used to move water from the wetter north to the drier south.

At one point, in 2009, when Davis was ready to renovate the North Lake Street side of the campus and the street along its borders, Abe, who had recently finished South Park, a green street in downtown Los Angeles, offered Davis five ways to capture and treat stormwater: infiltration, flow-through, detention, tree-root cells, and rainwater capture. Davis said yes to all five. The campus is a secure facility and seldom open to the public, but this work includes city sidewalks that now serve as public demonstration areas.

The stormwater improvements have been part of a 10-year modernization program at the plant that is costing \$500 million. The 22-acre property is



PLAN

WATER TREATMENT

- 1 PHYTOEXTRACTION CANAL
- 2 GREEN ROOF
- 3 RECYCLED WATER (ALL PLANTING AREAS AND FOUNTAINS)
- 4 PREFABRICATED CONCRETE INFILTRATION RESERVOIRS
- 5 FLOW-THROUGH BULB-OUT PLANTERS
- 6 PERMEABLE PAVING SYSTEM
- 7 TREE-POD BIOFILTERS
- 8 RAIN CHAINS

SOILS RESTORATION AND REVEGETATION

- 9 RIPARIAN PLANTING AREAS
- 10 ORNAMENTAL PLANTING AREAS
- 11 FILTRATION PLANTING AREAS

ENERGY

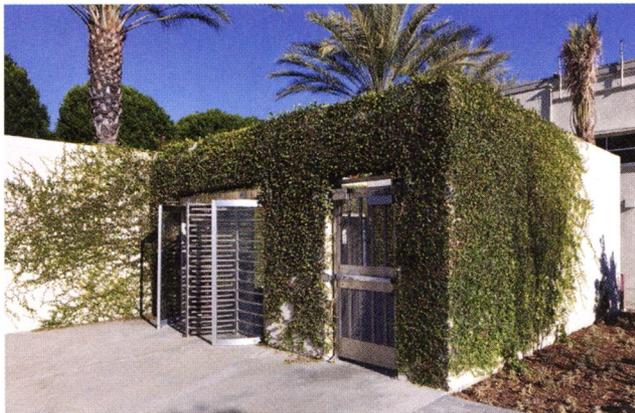
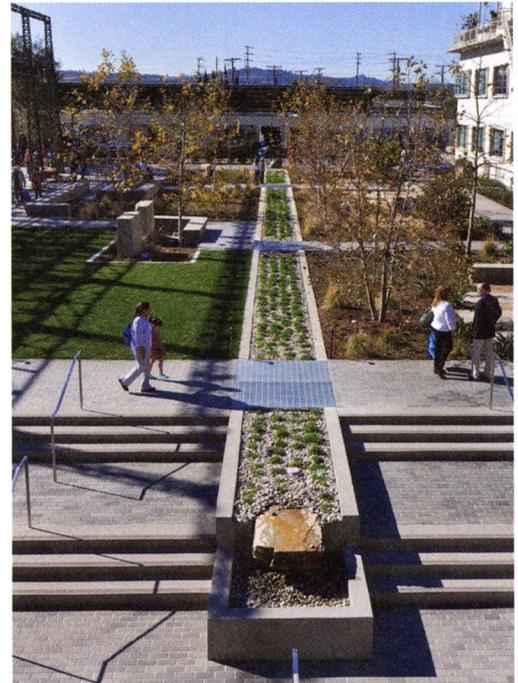
- 12 PHOTOVOLTAIC PANELS
- 13 LED LIGHTING
- 14 SOLAR-POWERED FOUNTAIN PUMPS

MATERIAL REPURPOSING

- 15 CONVERTED SUBSTATION SUPER TRELLIS
- 16 RENOVATED ADMINISTRATION BUILDING
- 17 SALVAGED CONCRETE PLINTHS AND SLABS
- 18 SALVAGED SUBSTATION GRAVEL
- 19 RECYCLED GLASS MULCH

ASSEMBLY

- 20 LARGE GATHERING AREA
- 21 CONVERSATIONAL PODS
- 22 ADMINISTRATION BUILDING ROOF PATIO
- 23 COMMUNITY STREET FAIR STAGING AREA
- 24 COMMUNITY POCKET PARK
- 25 INTERPRETIVE SIGNAGE
- 26 COOK CENTER



TOP LEFT
Mexican feather grass and crape myrtle trees line the Magnolia Street entrance.

TOP RIGHT
A buried utility tunnel that once housed fiber optics is the site's major water collection area.

BOTTOM
The employee turnstile entrance is covered in *Ficus pumila*.

now known as the EcoCampus, and inside and at the edges its surfaces take up water and either hold it or clean and release it slowly into the ground. The utility has three of the state's 50 LEED Platinum buildings and is said to have its only LEED Platinum warehouse. The solar arrays, on a steel structure designed to complement the 1949 art deco administrative building, power some of these new buildings and also channel rainwater to underground storage and slow-

release tanks, which allows water to slowly percolate into the ground. The campus is irrigated entirely with recycled water and is said to be the only power plant in the world with a steam generator that uses all recycled water (one million gallons a day) with zero water discharge into storm drains, which, here, would wind up in the Burbank channel, to flow almost two miles to the Los Angeles River and off to the ocean.

Much of the plant's stormwater apparatus is invisible or integral to the site. In the new half-acre Centennial Courtyard, the heart of the project, two large underground utility tunnels run through the center, one of which was to be demolished. But in AHBE's design, fiber-optic cables were removed from one of the concrete tunnels so it could become a "phytoextraction canal," where all water in the courtyard is directed. On the surface, the visible edges of the tunnel walls became the borders of the planting beds and the central spine of the gar-

den. The canal holds plantings of both native and ornamental yarrow, chosen for its ability to clean the water before it percolates into the ground. The other tunnel remains in use and is covered with thin-set concrete pavers as camouflage.

The plantings across the site vary by zone. Display gardens along the building edges have succulents such as agave, *Sedum*, aloe, and echeveria in masses. Toward the back of the campus are riparian plantings where surface waters drain, such as deergrass (*Muhlenbergia rigens*) and iris (*Iris* 'Pacific Coast Hybrid'). On the edge that faces the Burbank channel, AHBE installed a colonnade of date palms above spiky clumps of phormium.

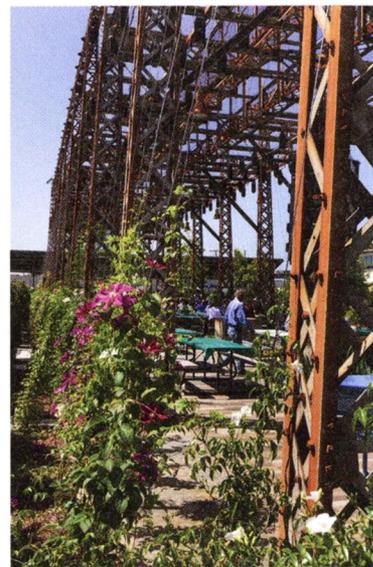
The improvements along North Lake Street, which runs along the site's southwestern edge, may have been inspired by AHBE's South Park project but had more obstacles. "At South Park, we had 17 feet of sidewalks, and



ABOVE
Water infiltrates the grassy area and is channeled to a storm drain in the street.

TOP RIGHT
A rooftop garden provides another way to collect water.

BOTTOM RIGHT
Clematis creeps up cables on the trellis ruin.



(*Carex divulsa*) to buffer people in the park from the street. Plantings relieve the paved areas with beds of iris and boxwood beneath crape myrtles planted along the edge.

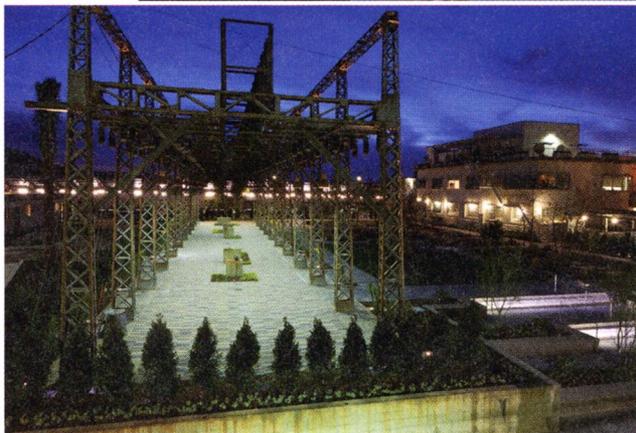
Water is also captured from three green roofs that cover a total of 8,880 square feet. The largest of them covers the renovated administration building with exuberant swirls of cobalt blue and green glass pathways, bordered by brown and green fields of *Sedum* and *Graptopetalum*—the pattern represents the flow of water through the landscape. Seventy percent of the water absorbed by the roof funnels into the two buried cisterns under the solar array.

here we had only eight,” Abe says. “How do you create a green street out of that?”

The answer is surgically. The design expands into the roadway with infiltration plantings that bump out from the curb along no-parking sections of the street. The bump outs catch water as it flows down the curb and give it to plants such as rush and dietes, which can take both winter rains and summer droughts. A Silva Cell system creates space underground

as it holds up the sidewalk to give tree roots ample room to grow. A Filterra bioretention system holds a “tree pod,” or planter box, that filters pollutants from stormwater runoff. These systems, along with flow-through filtration planters and a permeable paving system, keep 90 percent of rainfall within the green street spine so it doesn’t end up in storm drains. Also along North Lake Street is a pocket park at one entrance to the plant, with concrete seat walls and drifts of Berkeley sedge

By law in California, the plant would be required to hold on to the first three-quarters of an inch of rainfall, but it is already taking on the first inch. The landscape architects worked with civil engineers, who designed the storage capacity of the various cisterns and slow-release tanks, to achieve such results. The next phase of stormwater capture will be a new infiltration project for the entire campus, which is expected to cut the net discharge to the Burbank channel to zero.



TOP
A plum hedge borders one end of the courtyard.

INSET
The gray pavement glows under the trellis at night.

The project has been chosen as one of two industrial sites out of 150 projects in all to be a pilot in creating performance benchmarks in sustainable land use for the Sustainable Sites Initiative, or SITES, a partnership of the American Society of Landscape Architects (the publisher of this magazine), the Lady Bird Johnson Wildflower Center at the University of Texas at Austin, and the United States Botanic Garden.

For the plant's employees, the Centennial Courtyard has become a sort of civic plaza. The courtyard is designed around an enormous, out-of-use electrical substation armature that looks like something out of a science fiction movie—and, indeed, did appear in a 1956 Lon Chaney movie, *Indestructible Man*. The substation was one of four originally on the site. At first, the AHBE team proposed tearing them all down, until it was suggested that parts be saved as industrial relics. "It totally changed how we envisioned that space," says Evan Mather, ASLA, a principal of AHBE. "It became more about celebrating the heritage of the site."

Three of the substations were demolished, and the scrap was sold to pay for the courtyard renovation. The remaining relic, 144 feet long by 20 feet wide and 20 feet high,

is now a gigantic trellis with seating underneath it—metal chairs and tables and concrete seat walls fashioned from old concrete plinths that held up the transformers. Vines are climbing up the structure along stainless steel cables and will eventually cover it.

The formerly industrial courtyard is now so attractive, some people have even called to ask the utility if they could get married there—a high compliment to the design's success. "The big idea of repurposing former industrial sites is not only a story for us and the client," Abe says, "but for the community and the region." ●

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