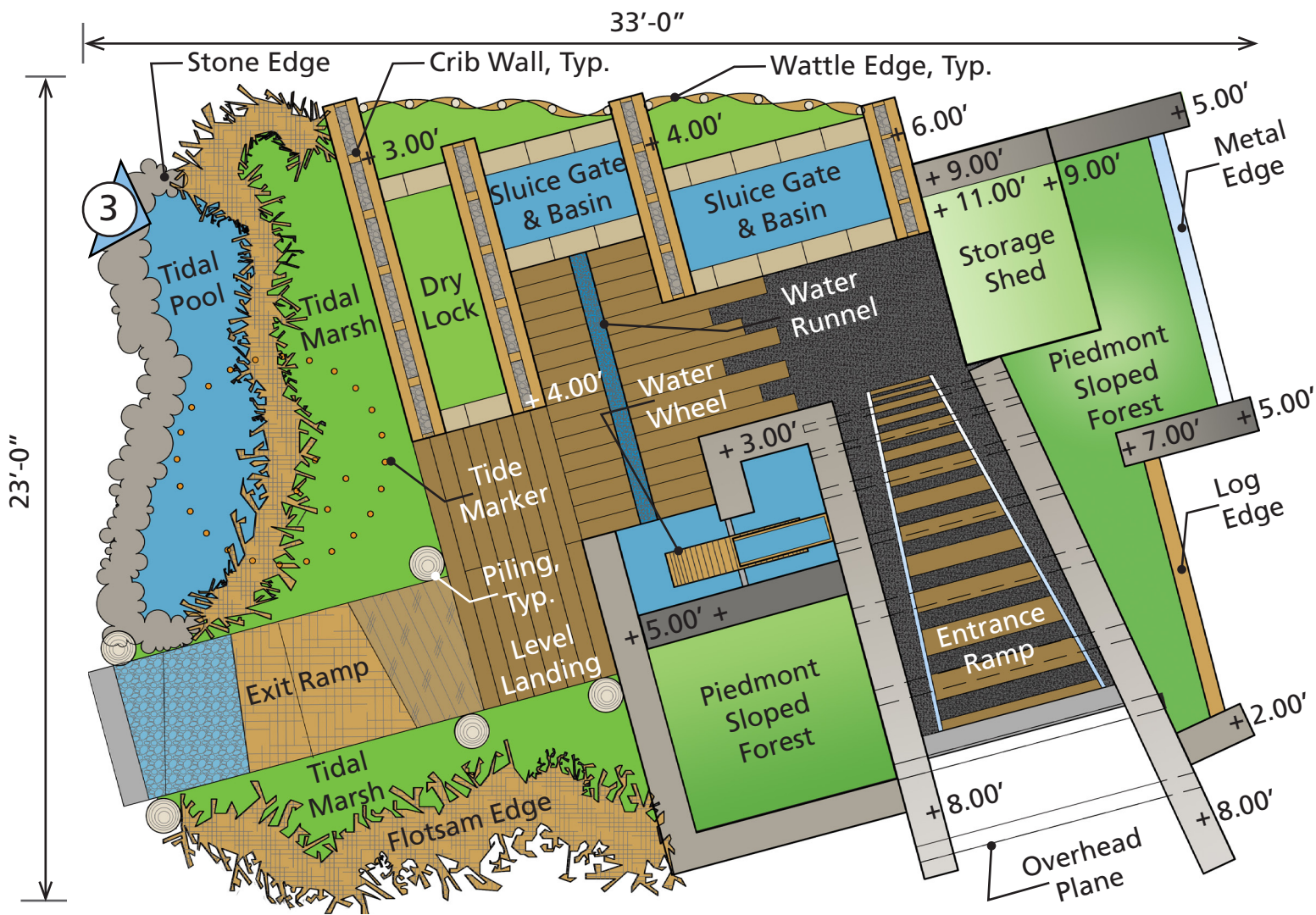


WITHIN REACH!

UNLOCKING THE LEGACY OF OUR HIDDEN RIVER





1 Exhibit Plan

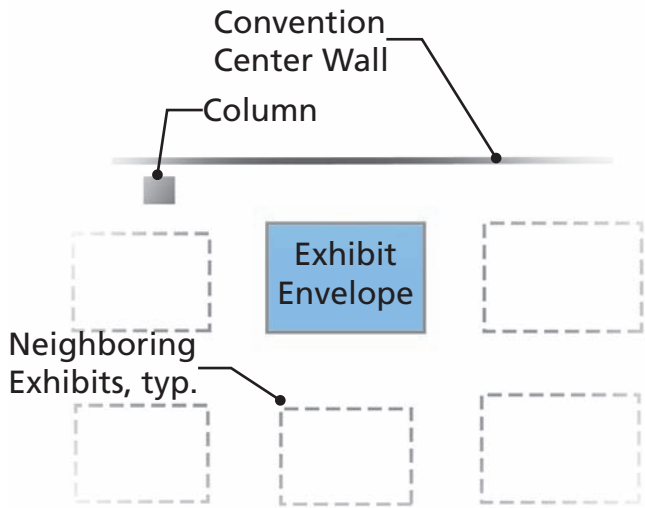


Exhibit Logo.
 (Previous page.) Our exhibit logo depicted the headwaters of the Schuylkill River in the Piedmont region, water wheels that powered various mills, the Moon, and the semi-diurnal tidal changes in elevation of the river.

2 Exhibit Context Plan
 Not to Scale



WITHIN REACH!

UNLOCKING THE LEGACY OF OUR HIDDEN RIVER

The 2018 PHS Philadelphia Flower Show, “Wonders of Water,” occurred between 1 and 10 March 2018. Following is the text that was written to convey our exhibit theme.

DESIGN INTENT

Overall Design Concept

Our exhibit explores historic interactions between plants, water, and people by drawing upon the phenomena of freshwater tides, and the Atlantic Seaboard Fall Line.

Horticultural Concept

Plants from the Piedmont inhabit a sloped forest. Coastal Plain plants dwell amid freshwater tidal ebbs and flows. Ornamentals pool in moist canal locks.

Expected Impact on Visitors

Visitors will discover remarkable powers that plants, water, and the Moon possess, and be drawn to help protect and ecologically restore the Schuylkill Valley.

View 3. Overlooking the tidal marsh, canal crib walls, and toward the water wheel.

AWARDS

PHS Silver Medal

Awarded for 91 of 100 possible points

Chicago Horticultural Society Flower Show Medal

Awarded to an educational exhibit showing outstanding horticultural skill and knowledge in a nationally recognized flower show.

Special Achievement Award of the Garden Club Federation of Pennsylvania

The category of education.



EXHIBIT PHS SIGN TEXT

Rise slowly from the bottom of a lock and beneath a green linked canopy. See water gush through the sluice gate and rise round rushes. Overlook mercurial pools of plants surrounded by stone-filled cribs. Emerge from a lush forest that slopes suddenly upland. Cross the fall line, onto a plain and into the marsh where the tide is marked twice daily. Visit the Schuylkill. Uncover its past!

INTRODUCTION TO SHOW VISITORS

Discover the hidden river—the Schuylkill! There! Behind League Island, beneath towering trees! Upstream, the rushing, roaring waters that the Leni-Lenape called *manaiunk* once plunged from races to wheels and powered mills—grist, paper, lumber, and cotton. Inside this exhibit, we reveal some of the history and character of the Schuylkill, including:

- the Piedmont forest, its headwaters
- the Schuylkill Canal, Pennsylvania's first river transportation system
- freshwater marshes that rely on the sun, and moon!



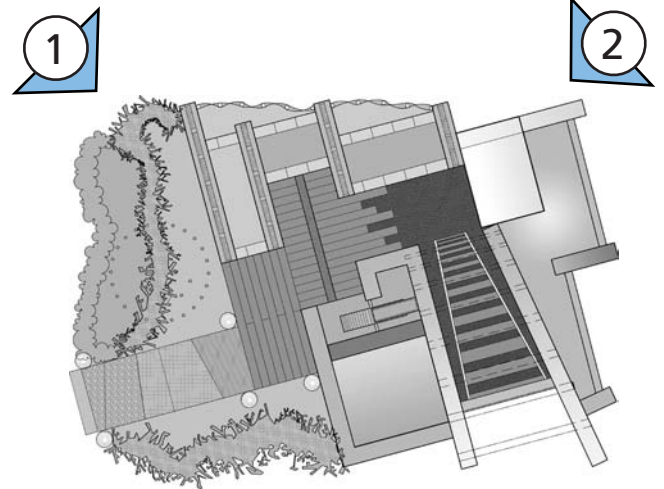
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Unlocking the Legacy

Before embarking, consider this: We drive, ride, and run beside the Schuylkill River; row atop and cross it. But: our forebears have spoiled the Schuylkill, and so have we. We cannot eat fish from its flow, cannot be cooled from a swim within, or bring its current to our lips in cupped hands. No! Why?

Ahead, discover a few ways to restore our hidden river:

- Protect and restore forests, which harbor wildlife, disperse rainwater, and clean headwaters
- Capture, slow, and infiltrate rainwater, which keeps the Schuylkill placid and clean
- Call for the creation of tidal marshes, which harbor wildlife and ease floodwaters. Protect marshes that remain, and naturalize the riverbanks.



View 1. Overlooking the tidal marsh and over the crib walls, which progressively rise in height.

View 2. Looking toward the sloped Piedmont region. Plants sit atop the storage shed.



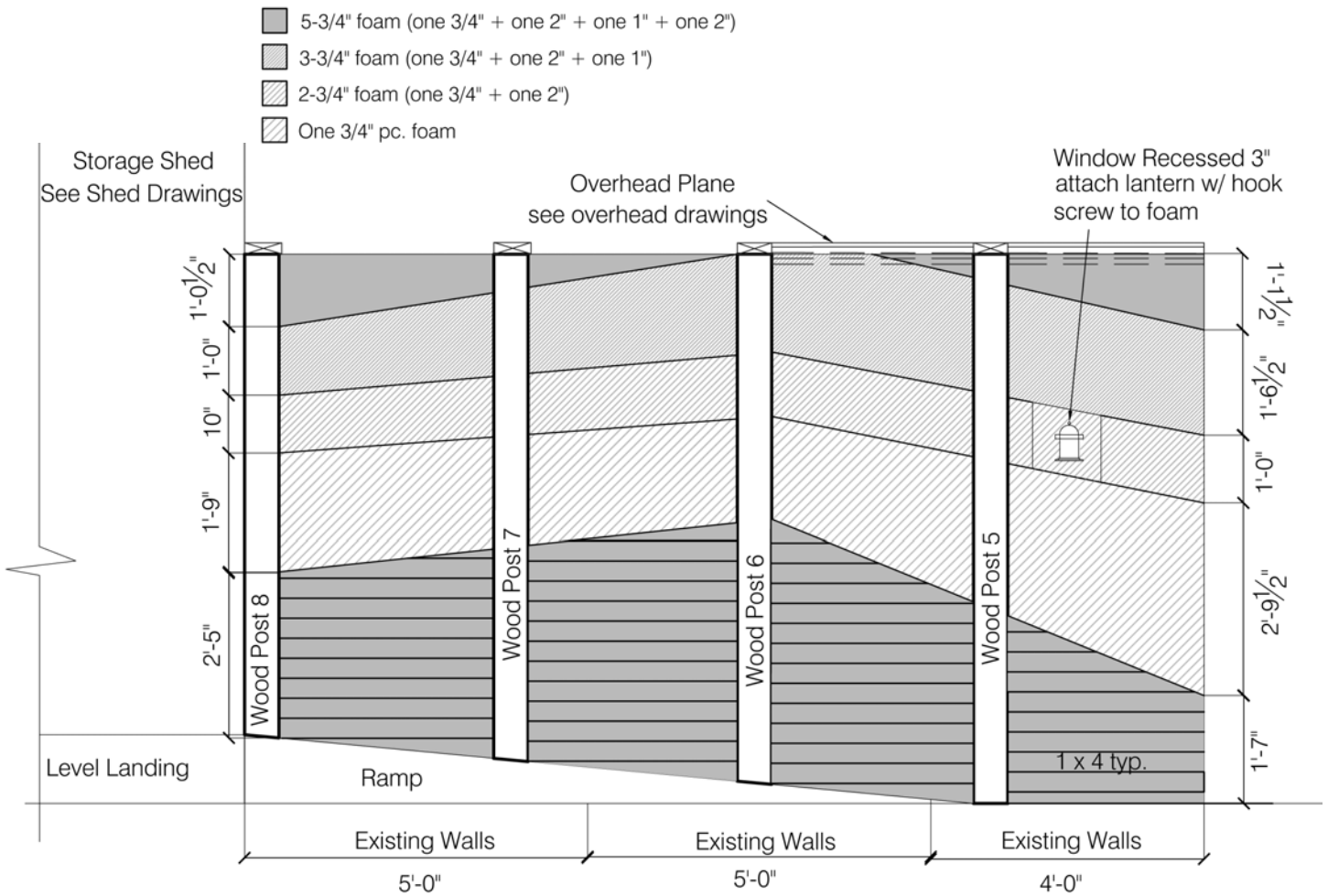
PIEDMONT FOREST

DISPERSE, SLOW, & CLEAN RAINWATER WITH PLANTS

Look yonder! From atop the mountains, the Schuylkill River emerges. Around Reading the river drops, through walls of ridges and lonely hills that reminded early Europeans of *Piemonte* —the foot of the mountains. Back then, giant oaks, chestnut, poplars, and hickories helped keep the river clean.

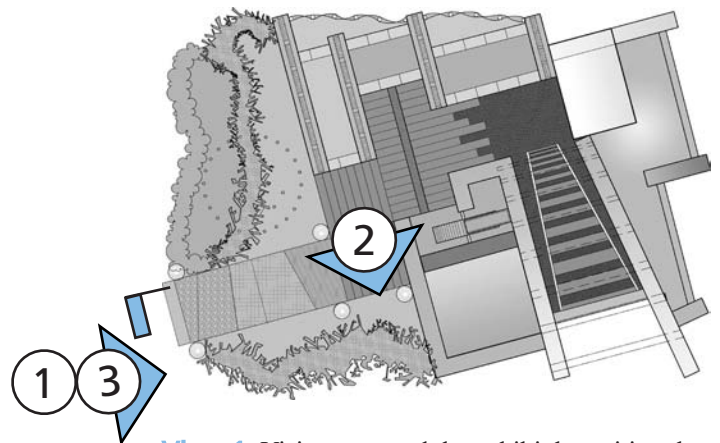
Coal mining, logging, and agriculture, along with disease, have decimated Piedmont forests. Without the filter of the forests upriver, the Schuylkill isn't as pure as it once was.

Filter your headwaters! Cover your roof with vegetation. Let the mower sit idle. Plant and protect trees, shrubs, and dense grasses within fifty feet of waterways, or more. And trap carbon with trees!



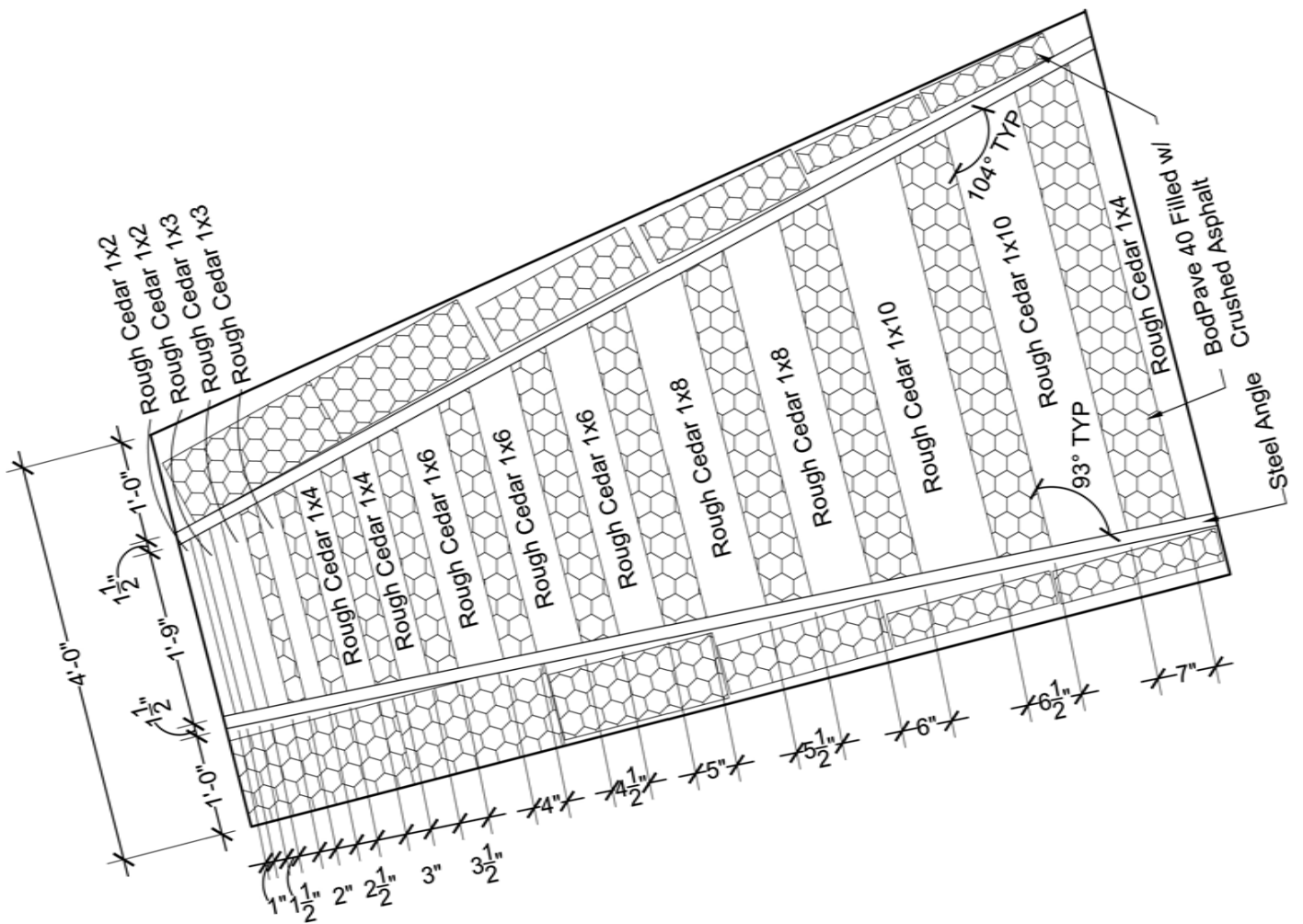
2 Section Through Entrance Ramp Looking Toward East Wall
 Author: H. Nilsberg

Not to Scale



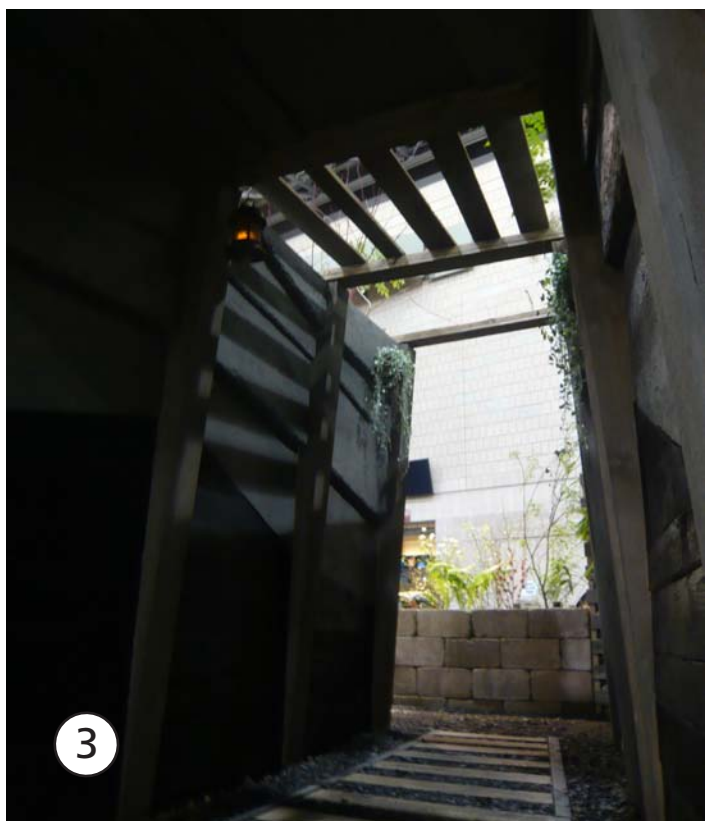
View 1. Visitors entered the exhibit by exiting the enclosure of an anthracite coal mine. Scorched, rough-sawn one-bys at the bottom of walls mimicked a coal seam.

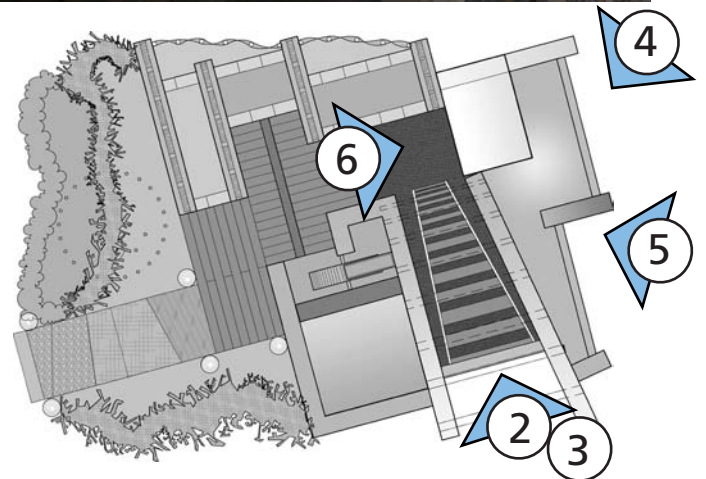
View 3. Lanterns, leaning posts and walls, and an overhead plane contributed to the mine theme.



1 Entrance Ramp Plan
 Author: G. Manning

Not to Scale





View 2. A sloping path and forced perspective increased the perceived length of the entrance ramp.

View 3. The overhead plane gradually opened and diminished the sense of enclosure as visitors entered.

View 4. We positioned plants at a comfortable height for visitors to inspect.

View 5. Walls and the storage shed roof sloped at identical angles.

View 6. Corrugated metal contrasted the *Wisteria spp* and window filled with *Heuchera spp*.



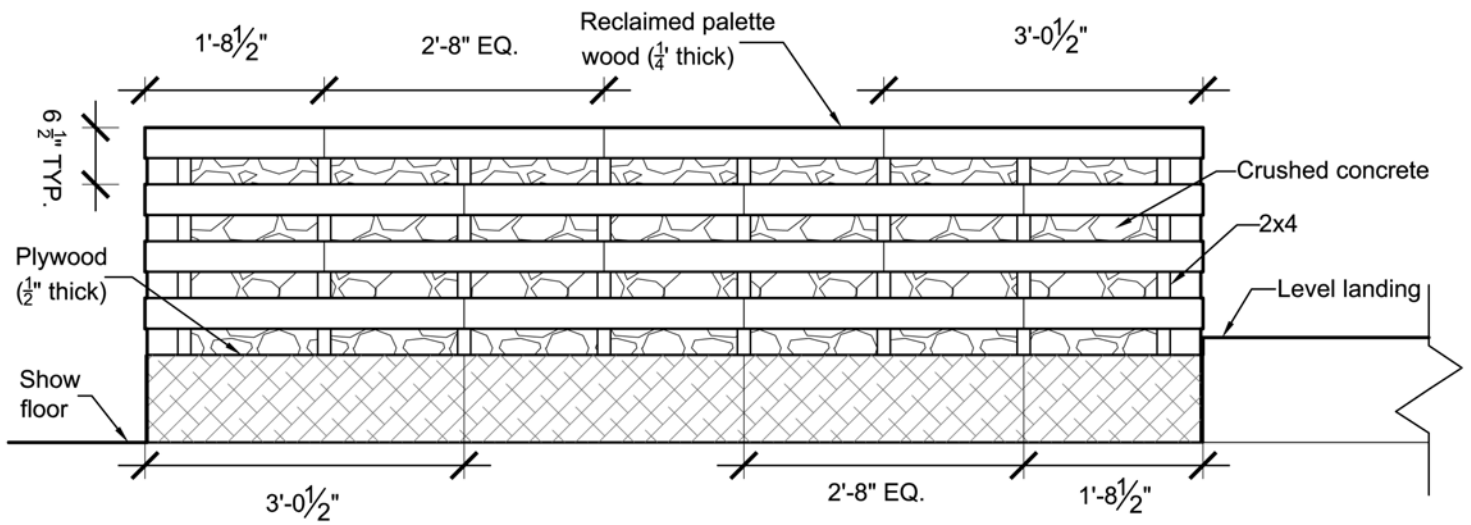
SCHUYLKILL CANAL

HARVEST & INFILTRATE RAINWATER IN PLACE

In the mid-1800s, The Schuylkill Navigation System opened. Engineers diverted water from the river into reaches, or pools, which allowed scows to bypass rock outcrops and falls. Mules towed boats of coal from mines to markets a hundred miles downriver. Coal silt filled the canal in the 1920s, as the railroad rendered it obsolete.

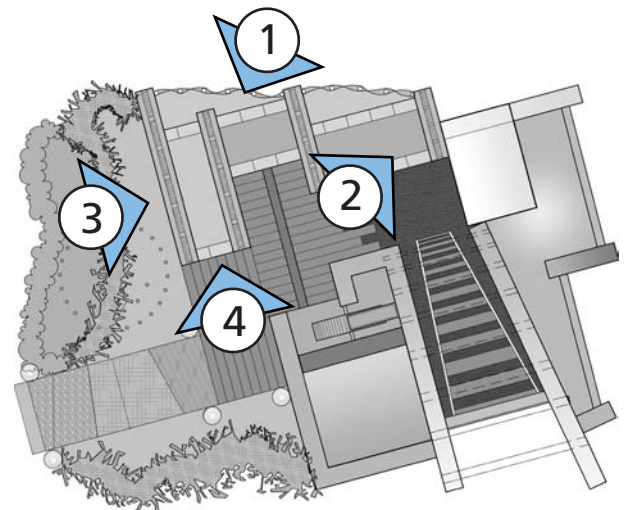
Today, stormwater from our drives, roads, roofs, and even lawns, directly enters the Schuylkill, carrying sediment, salt, fertilizer, and chemicals.

Don't direct rainwater downriver! Attach rain barrels to your downspouts and release the water into your garden. Soak up rain with pervious pavements. Construct rain gardens that infiltrate water. Cut back on fertilizer, or go organic. And keep the salt in the kitchen.



3 Elevation of 3'-0" Crib Wall
 Author: C. Villers

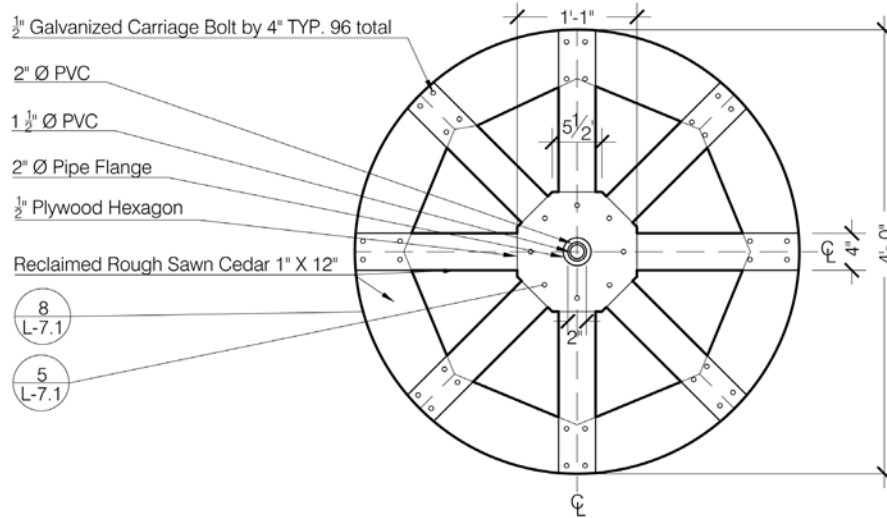
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View 1. Slackwater behind a closed canal gate filled with mosquito fern.

View 2. An open canal gate filled a water basin at the top of the entrance ramp, in view of visitors.

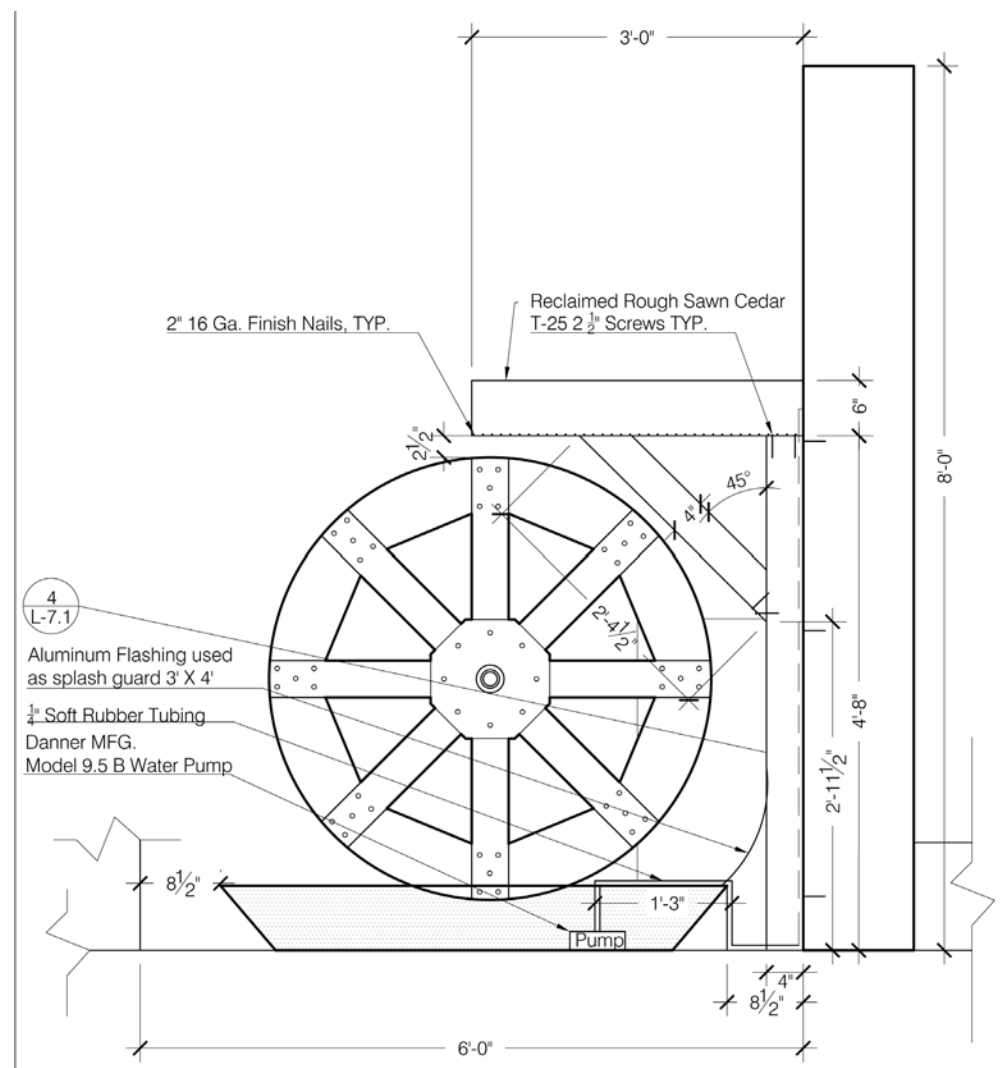
View 4. Opposite the closed gate, we presented a lock that contained plants that tolerate moist conditions.



1 Section Through Water Wheel

Author: T. DeSantis

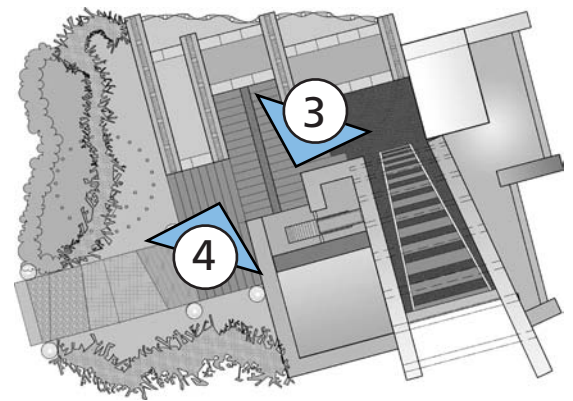
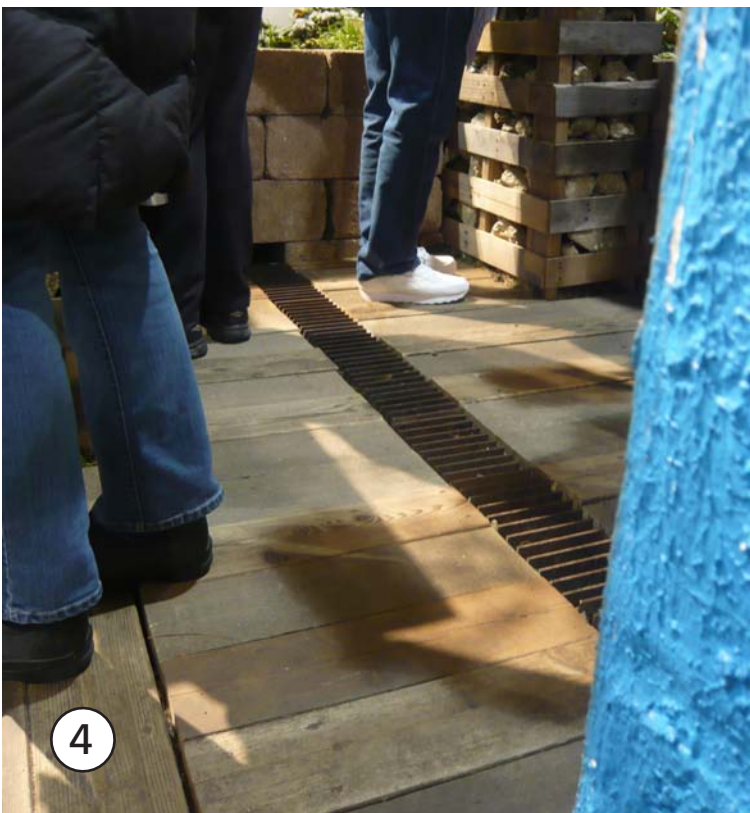
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2 Water Wheel, Race, and Basin Elevation

Author: T. DeSantis

Not to Scale



View 3. Upon turning from the open canal lock gate and around the mine walls, visitors saw the water wheel, and heard it creak and splash.

View 4. A runnel connected the water wheel and canal locks. Beneath metal grating, bead lights and rounded glass culet rested within a blue channel.



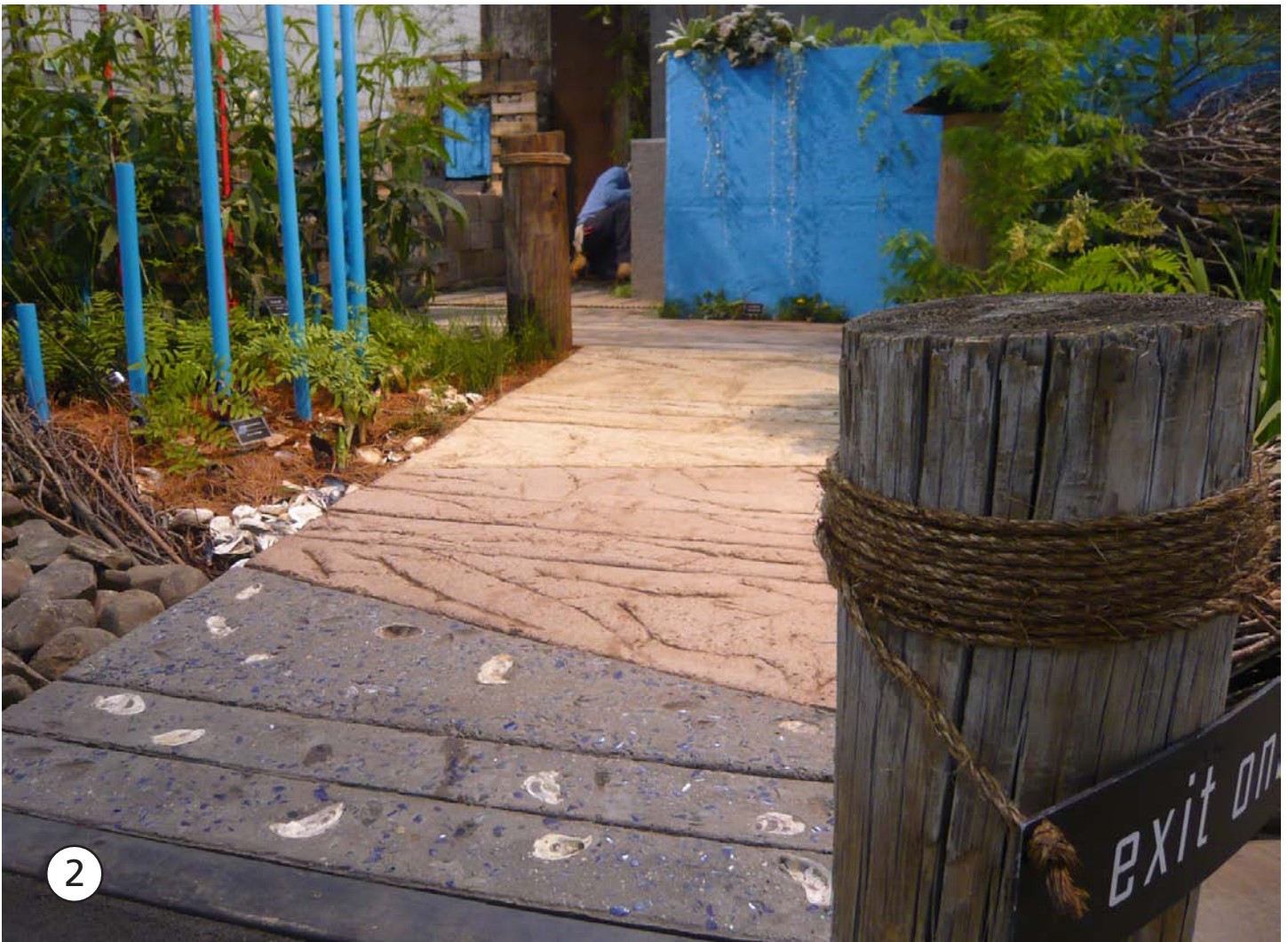
TIDAL MARSH

ACT TO NATURALIZE THE SCHUYLKILL

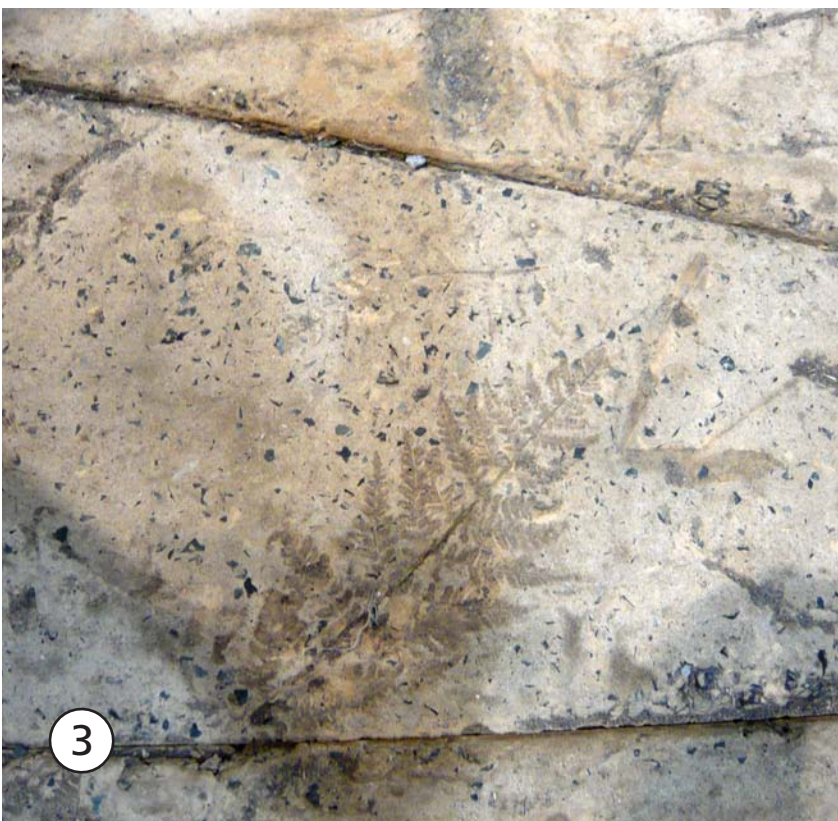
Have you noticed? Every day, twice a day, from the Fairmount Water Works to the Delaware River, the Schuylkill River rises and falls over six feet. How? The Moon! Over eons of orbits around Earth, the Moon has pulled upon our surface waters like a magnet. In time, some plants and wildlife evolved to thrive in tides.

Enter enterprising Europeans: Drain the marshes! Put bulkheads in riverbeds! Replace those mud flats with concrete pads. Nowadays, the Schuylkill rises and falls, but few flora and fauna are found.

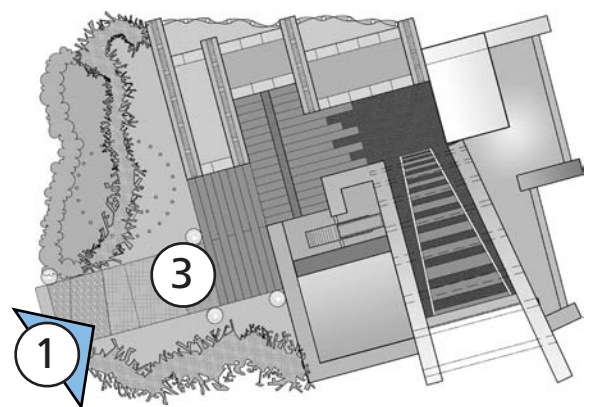
Ask your local organizations to naturalize the Schuylkill waterfront, from mountains to marshes. Pitch in to help preserve and protect the Schuylkill River that's within your reach.



2



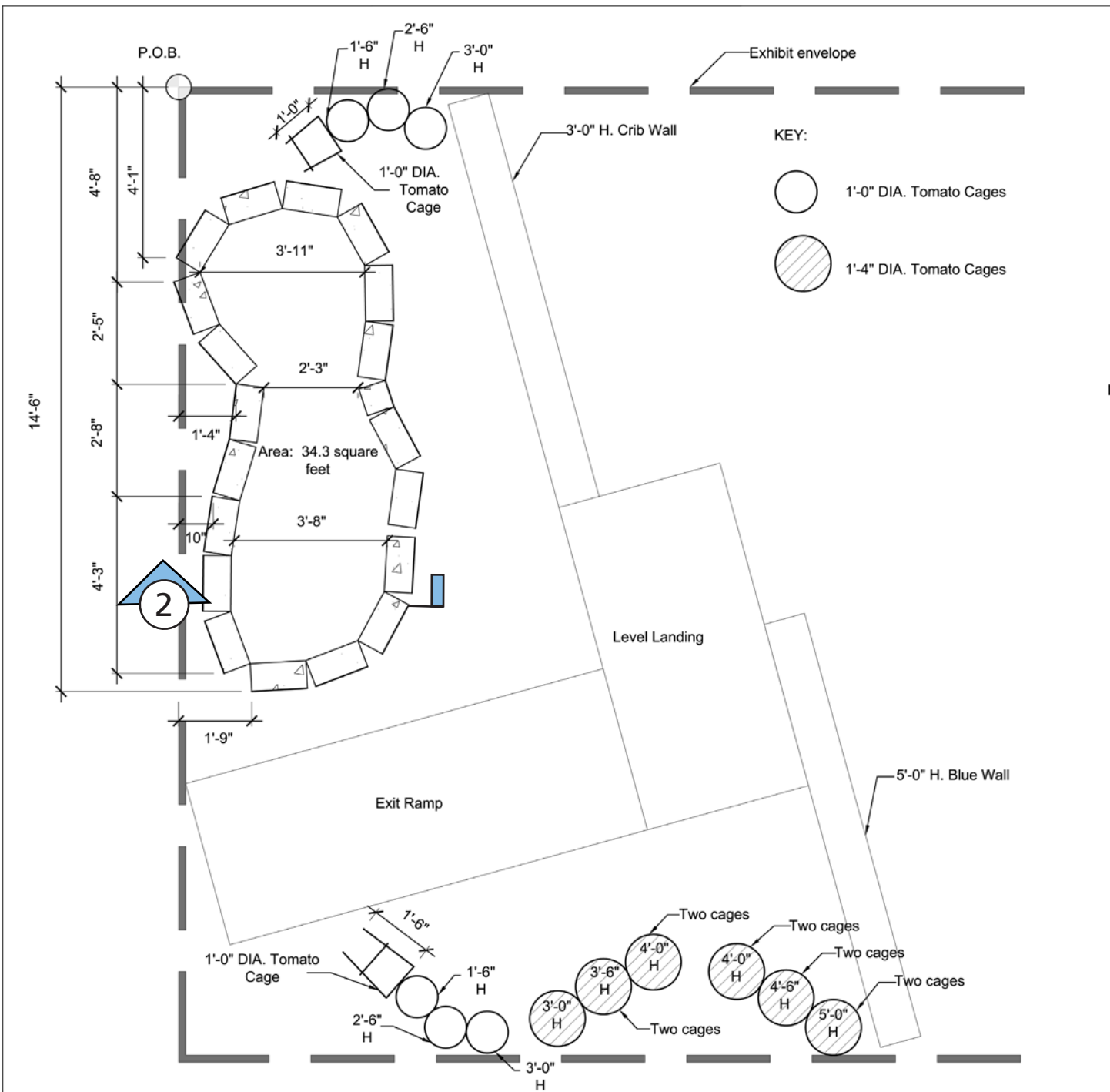
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View 1. Visitor's exited the exhibit by passing between the tidal marker and flotsam edge.

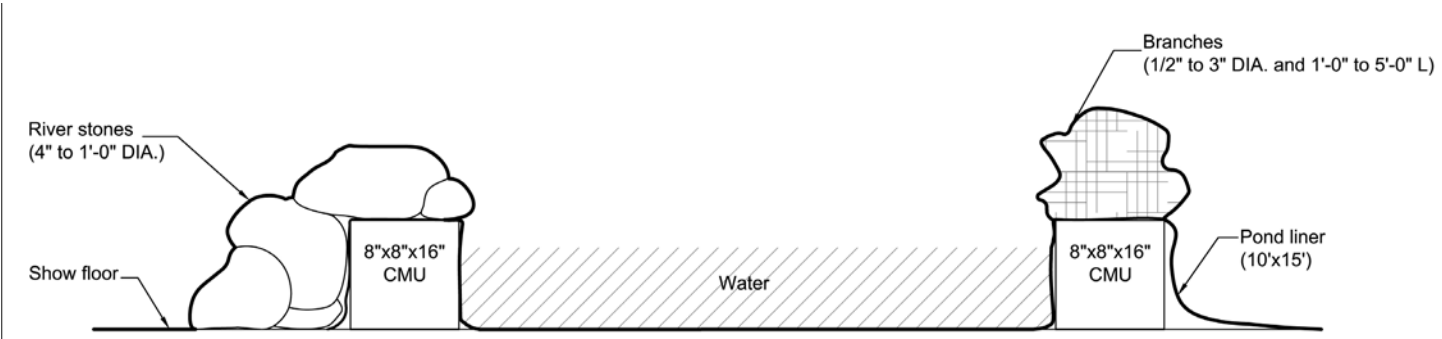
View 2. Utility pole segments and rope recalled the maritime history of the river. Blue glass cullet, oyster and mussel shells pressed into concrete pavers represented the water's edge.

View 3. Students pressed fern fronds and other plant parts into curing concrete to suggest plants that may reside in tidal margins.



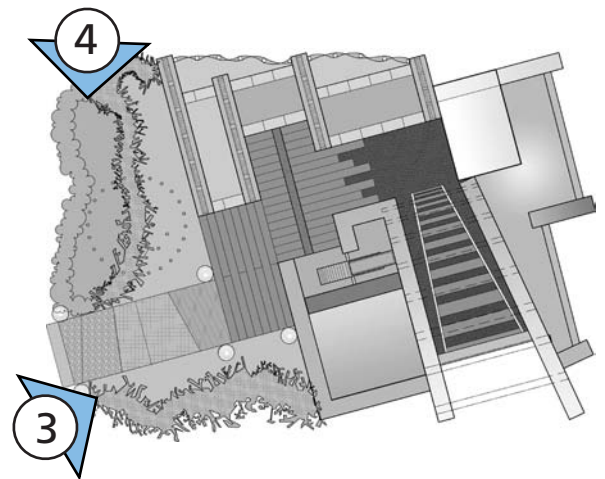
1 Tide Pool & Flotsam Edge Layout Plan
 Author: C. Villers

Not to Scale



2 Tide Pool Section
 Author: C. Villers

Not to Scale



View 3. Flotsam inspired a sloping, sinuous exhibit edge that contained an armature of tomato cages filled with twigs, branches, and boughs.

View 4. Rounded river stone served as an exhibit edge and covered the concrete block formwork of the tidal pond.

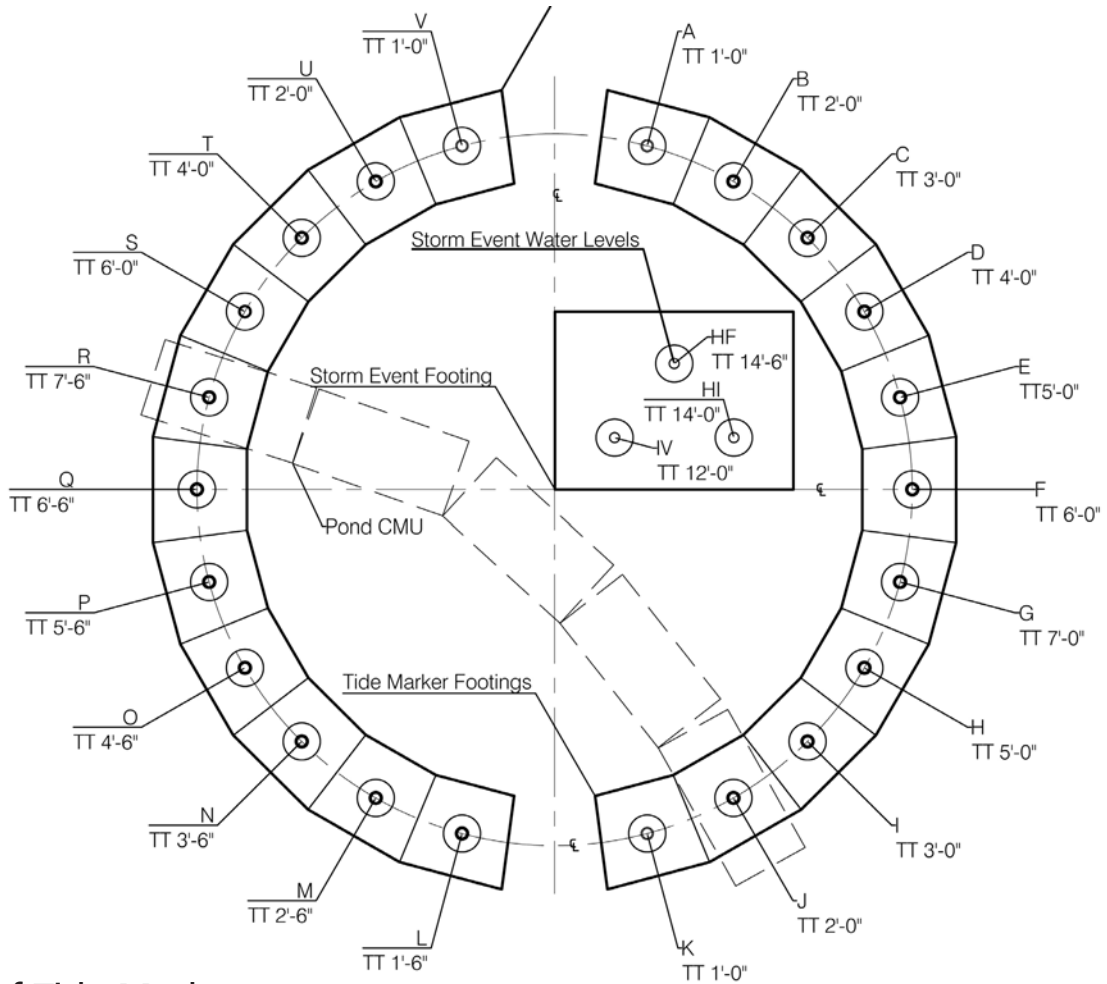


TIDE MARKER

As much as we'd like to watch the tide roll in and out, who has the time?! A tide marker can help us see how deep the Schuylkill is at any given time.

Each of the 24 blue cylinders that make up our tide marker represents the elevation of the Schuylkill at one hour on the first day of the Flower Show, March 3. The high tides of 6.6 and 6.9 feet occur at 1:59 am and 2:19 pm, respectively. Low tides occur at 9:21 am and 9:30 pm. Tides are cyclical, and we see the Moon, which causes tides, as a circle. So our marker is a circle!

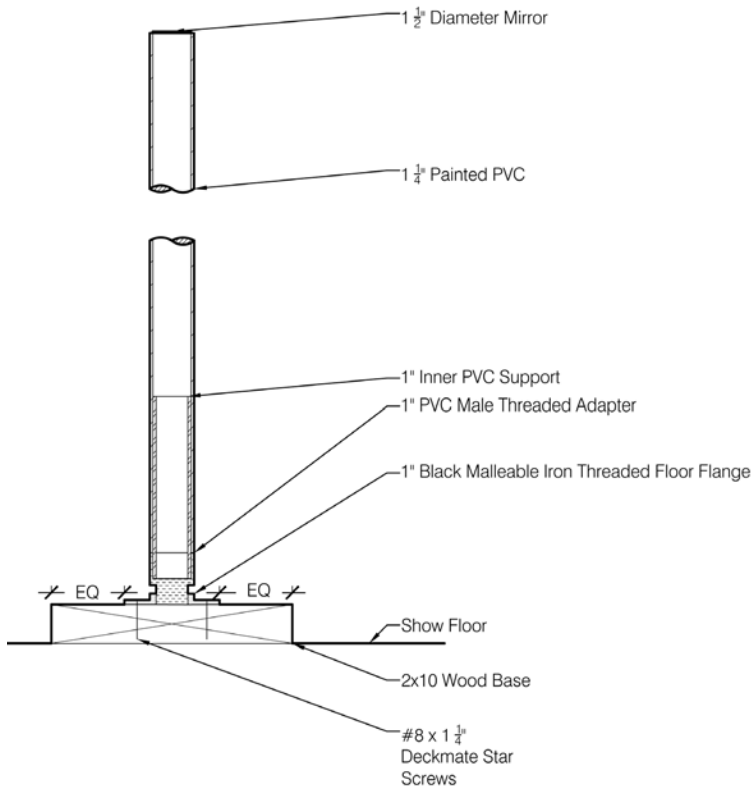
Storms make high tides even higher! The red poles each represent high tides during Hurricanes Floyd (1999, 14.10'), Ivan (2004, 11.33'), and Irene (2011, 13.56').



1 Plan of Tide Marker

Author: D. McLaughlin

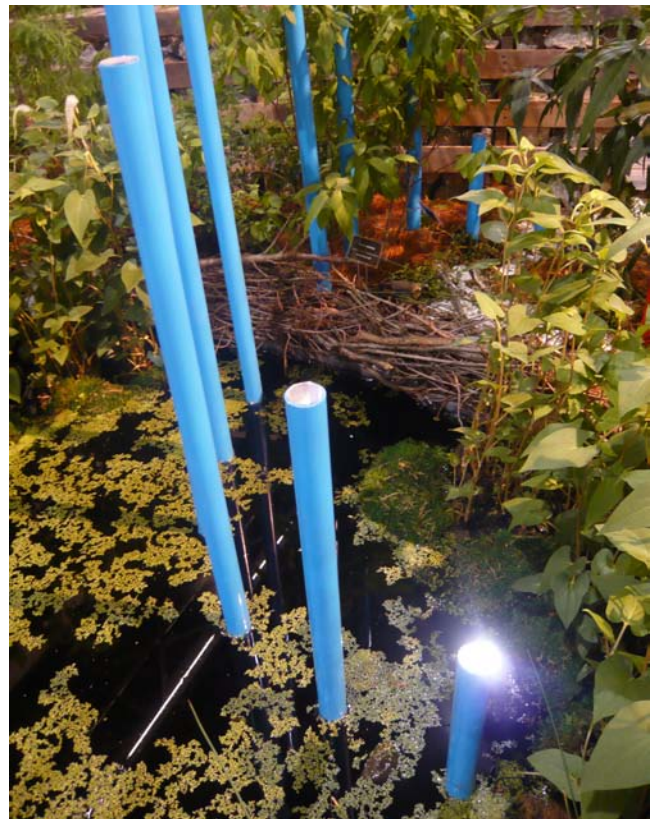
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2 Section Through Tide Marker Base

Author: D. McLaughlin

Not to Scale





Photograph by James Duffy, Temple University.

PROJECT CREDITS

Faculty and Staff: Rob Kuper, Associate Professor of Landscape Architecture; Michael LoFurno, Adjunct Assistant Professor of Landscape Architecture; Ben Snyder, Horticultural Technician

Junior students (design-build studio): Alex Booth, Bryan Green, Tyler DeSantis, Leila Fleisher, Grace Manning, Devon McLaughlin, Hanne Nilsberg, Eric Sylvester, Ciara Villers.

Senior students (truck driving/loading): Evan Eisenhard, Keye Faddis, Rob Gladfelter, David Heckman, Ronnie Ludwig, Nicolas Moll

Horticulture student workers: Rob Gladfelter, Jennifer Klimowicz

Pictured Above.

From left, Grace Manning, Tyler DeSantis, Hanne Nilsberg, Bryan Green, Leila Fleisher, Alex Booth, Rob Kuper, Eric Sylvester, Mike LoFurno, Devon McLaughlin, and Ciara Villers.