

**DAVINCI ARTS MIDDLE SCHOOL
WATER PROJECT**

**YEAR ONE
2000-2001**

**A JOINT PROJECT OF
KEEPERS OF THE WATERS, PORTLAND
AND
DAVINCI ARTS MIDDLE SCHOOL**

METRO CONTRACT # 922548

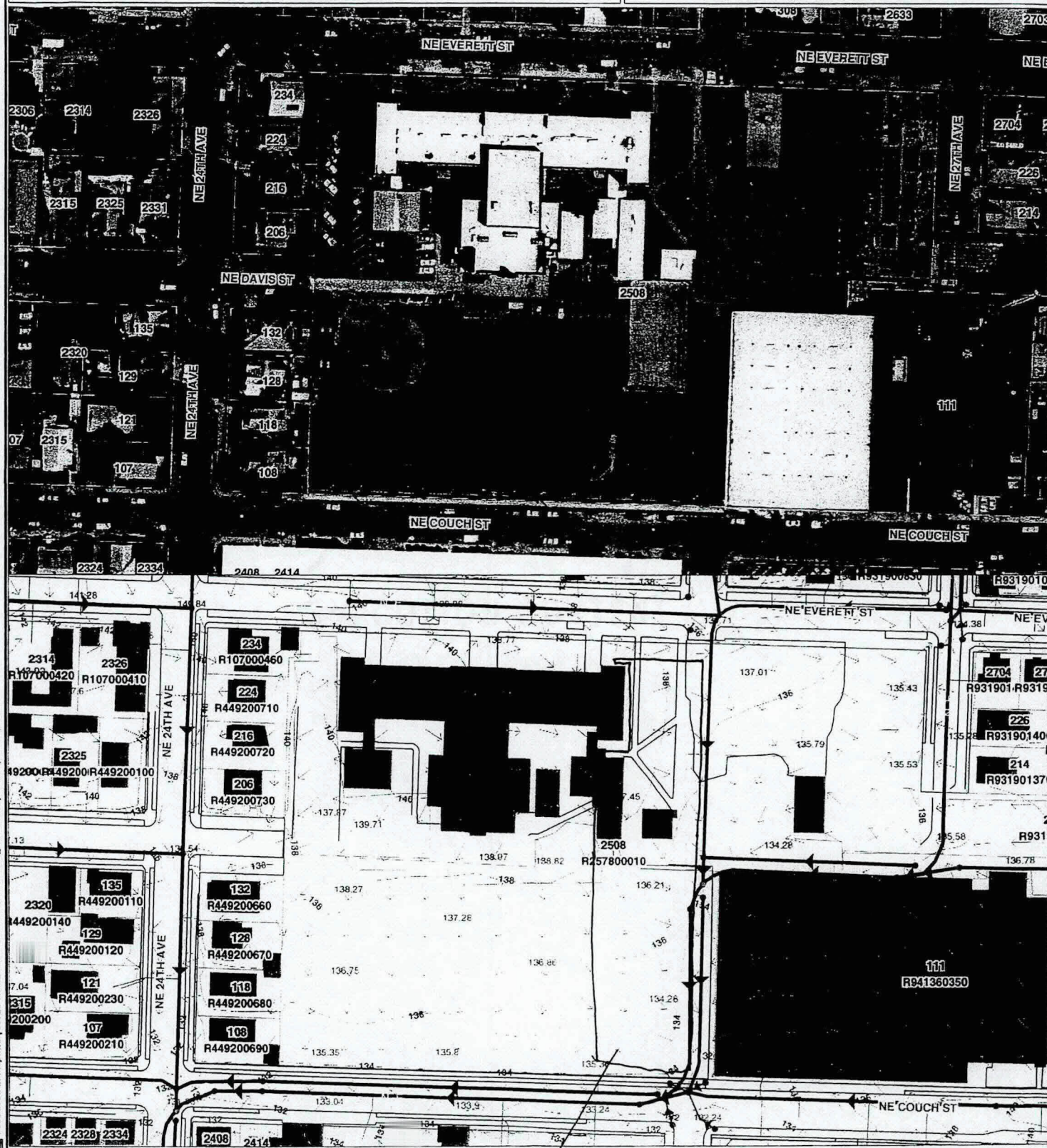
*This is also the final report for
METRO CONTRACT # 922591*

Parcel No : R257800010
Owner Name : SCHOOL DISTRICT NO 1 A
Mailing Address : PO BOX 3107
PORTLAND OR 97208

2508 NE EVERETT ST
PORTLAND, OREGON

PROPERTY OWNER

SITE ADDRESS



area within which phase
II garden will occur

PROJECT DESCRIPTION

This Salmonid Education Enhancement Project was part of a larger year long project called the DaVinci Arts Middle School Water Project (referred to hereafter as the daVinci Water Project). It consisted of two components: 1. A multidisciplinary school-wide investigation of water, our urban watershed, non-point source pollution, the combined sewer overflow problem, and methods for detaining, cleaning and reusing roof and parking lot runoff, and 2. Research, and the involvement of community in designing a Living Water Garden that would showcase rainwater harvesting and natural methods for cleaning surface run-off. Part 2 of this larger project was made possible by the Salmonid Education Enhancement Project grant.

This project, initiated by Cascadia Keepers of the Waters, and embraced by the teachers of da Vinci Arts Middle School, provided an opportunity to work with students, teachers at Da Vinci Middle School, parents and community, and a team of artists, scientists and landscape architects, to begin the design of an innovative stormwater treatment system that would disconnect roof runoff, clean it, and use it in an artistically designed greenspace for the school, on school property.

Grant funds were used to: 1. Provide technical support to students on the conceptual design criteria for an alternative, natural stormwater treatment system in their schoolyard, and designing culturally significant water garden. 2. Publicize the project, and engage people city-wide in discussions about alternative, natural "backyard" stormwater treatment systems through public speaking opportunities and public events. 3. Recruit volunteer and community partners to participate in school garden project, and design charette. 4. Facilitate a Living Water Garden design charette for students, parents and community.

GOALS AND BENEFITS

By disconnecting some of the stormwater runoff from DaVinci Arts Middle School from the stormdrains and creating an artistically designed garden to treat and use the water, we will be supporting city efforts to reduce runoff volume into the combined sewers of inner SE Portland, creating a greenspace that: creates additional wildlife habitat within the city, increases biodiversity, provides community gathering space for school and neighborhood, and provides a model project that educates the community about sustainable methods of water treatment and stewardship.

This project brought visibility to our ideas of sustainable water treatment systems appropriate for urban areas. The first year of this project informed the public about innovative, low-tech and sustainable stormwater treatment systems. It educated citizens about the detrimental effects of surface runoff on our rivers, and the plants and animals that live in them, while introducing them to the possibility of cleaning and retaining water for backyard, schoolyard and business property use, instead of letting it pollute our rivers, streams and groundwater. It provided opportunities for students and citizens to reexamine their watershed, the role they play in it's health or decline, exposed them to solutions for the restoration of the natural environment in which they live, and provided them with a project in their own neighborhood that they could get involved in, that would be a model for others to duplicate around the city and region.

As was our hope, engaging 150+ students at daVinci Arts Middle School in designing solutions to the very serious problem of stormwater runoff, had the added benefit of educating and inspiring the parents of those same students. These students took home their excitement, talked about the research they were doing at school, talked about the possibility of making their own stormwater gardens, and eco roofs at home, and shared all of this information with their parents. This generated considerable interest from the parent community at daVinci. We had parents attending educational lectures, taking part in the design charette with their children, and offering technical and material support for the construction of the garden. And evidence that some of that information and a greater understanding of sustainable solutions stuck with these parents, was apparent in the letters of recommendation they wrote supporting the nomination of Dan Evans for Science Teacher of the Year thru the Portland Schools Foundation. Mr. Evans was the key daVinci teacher involved in all aspects of the Water project. Every letter written for him mentioned specific components of our planned Living Water Garden, including Flow Forms, and Eco Roofs, and Living Machines, they talked about the possibilities of cleaning water naturally and creating a nice space at the school for students in the future. Mr. Evans was awarded the honor of Science Teacher of the year for 2000/2001.

TIMELINE OF SCHOOL ACTIVITIES

IN-CLASSROOM ACTIVITIES

March 2, 2001—Sven Schunemann owner/designer of Flowforms America in Wisconsin, visits Dan Evans classes (5) at da Vinci to present ideas about the natural systems of water and the creation of Flowforms. Students participate in classroom exercises to witness the inherent nature of water, flow and vortices. Mr. Schunemann donates 3 tier Flowform for students to study.

March 19, 2001—Erin Middleton presents slide show of Cheng Du, China, Living Water Garden, created by Betsy Damon, founder of Keepers of the Waters, in to Mary Morris' 3 classes. Students and presenter have lengthy discussion about garden design using natural systems to treat polluted water. Students begin to develop ideas for their daVinci garden, bringing together conceptual ideas for culturally significant public space and technical aspects of using and cleaning runoff.

April 4, 2001—Mary Morris' 3 classes take field trip to the Classical Chinese Garden in downtown Portland to study Asian garden design, and water landscaping.

April 6, 2001—Valeria Otani, prominent Public/Environmental artist visits all 3 classes with hands-on design assignment. Students make 3-d models of possibilities for da Vinci water garden. Review of design ideas begins to articulate key elements/concepts for future da Vinci garden.

April 24, 2001—Marc Companion from Ocean Arks International, in Vermont, works with Dan Evans classes to develop Living Machine ideas for public spaces. Taking the work they have already done making their own living machines, he helps them develop ideas of how to use Living Machine technology to create a closed loop system at school to reduce solid waste and runoff from school, provide environment for spawning salmon and other endangered fish, and create water environment for growing plants, including edibles.

April 25, 2001—Marc Companion gives public lecture at daVinci. Students have opportunity to present their classroom experiments to the visiting public, explaining the use of Flowforms, Living Machines, Living Water Garden Design, Green Roofs. Video students of Bill Martin videotape the lecture.

May 3, 2001—Judy Bluehorse Skelton, makes presentation to Katie Rorrer's science class about the historical and contemporary uses of native plants. Students develop ideas about native plants and their role in creating sustainable, supportive habitats for wildlife.

May 14-21, 2001—Suzanne Sigafos presents Pantoum poetry lesson to Sharon Wasson's 5 English classes. These are the same students that have been working with Dan Evans on cleaning water, and Mary Morris on garden design. The poetry session is meant to further develop ideas of water, flow, and rhythm thru nonvisual artistic discipline. The goal of this work is to create language that can become a part of the physical landscape of future garden. Students create poems destined for the walls, paths and built structures of the garden.

TIMELINE OF OUTREACH EVENTS

OUTREACH ACTIVITIES

January 11, 2001 — Erin Middleton and Kelly Rodgers give presentation to Portland Appropriate Technology Group on daVinci Water Project, and Living Water Gardens as natural rainwater, and runoff treatment systems.

February 14, 2001—Erin Middleton makes presentation to Kerns Neighborhood Association about daVinci Water Project, and future Living Water Garden, and solicits possible volunteers for the creation of garden.

March 1, 2001—Erin Middleton and Dan Evans talk about daVinci Water Project, and possibilities of natural run-off treatment systems, at the Keeping out of Muddy Waters Workshop, sponsored by BES, using a powerpoint presentation, created by daVinci students.

March 21, 2001—Erin Middleton and Dan Evans give presentation to daVinci parents and community on daVinci project and future Living Water Garden for the school. Students provided personal accounts of the things they had learned so far about CSO problem, and sustainable ways to treat run-off.

March 22, 2001—Erin Middleton presents daVinci Water Project, and possibilities of natural run-off treatment systems at Flow, A Watershed Awareness Symposium sponsored by BES, using student powerpoint presentation.

April 22, 2001—Erin Middleton presents daVinci Water Project and Living Water Gardens at HOPES Conference at the University of Oregon.

May 31, 2001—Student designed flowforms are displayed at annual daVinci Art Exhibit, with written explanations about their ability to support natural water cleaning systems.

June 1, 2001—Students present work they have done thru Water Project at DaVinci Days school celebration.

June 4, 2001—36 students, parents and design/engineering professionals take part in an evening Design Charette. 7 teams of participants brain storm ideas for the daVinci Living Water Garden, developing priority list of elements, and preliminary design ideas. Students educate adult participants about natural cleaning systems, and the hazards of non-point source pollution on fish and watershed habitats.

PROJECT BUDGET

Salmonid Grant	Description of Services or Materials Purchases	Cost or Cash Value (cash, in-kind materials & services; volunteer labor)	Metro Reimbursement
PERSONNEL COSTS	Project Coordinator	\$1,000.00	\$2,040.00
	Parents, students, community participating in design charette 24 people x 2.5 hrs x \$6.50/hr.	\$ 390.00	
	Volunteers helping with exhibit of flow-forms, presentation before Ocean Arks public lecture.	\$ 618.50	
	Parent volunteers on trip to Chinese garden	\$ 169.00	
MATERIALS & SUPPLIES	Materials for public presentations, classroom projects, and food for design charette... see addendum		\$1,039.16
	Donated computer	\$ 250.00	
EQUIPMENT RENTAL/ OTHER	School auditorium rental for meeting with parents	\$ 135.00	\$ 134.00
	Transportation to Chinese garden 90 students		
	School classroom rental for design charette	\$ 135.00	
PROFESSIONAL or OUTSIDE SERVICES	Valerie Otani		\$ 140.00
	Sven Schunemann		\$ 400.00
	Admission fees Classical Chinese garden 90 students		\$ 242.50
	Suzanne Sigafos poet – garden project		\$ 410.00
	Marc Companion – Living Machines builder		\$ 400.00
	Design charette participation by Landscape architects, engineers, planners 30 hours x \$40.00/hr	\$1,200.00	
	Joseph Christman design charette organizer 25 hours x \$40.00/hr.	\$ 1,000.00	
		\$ 325.00	
	PPS Environmental Safety and Health Technical Support/meeting	\$ 1,274.00	
	Da Vinci Teachers		
TOTALS		\$ 6,496.50	\$4,805.00*

- Grant amount was for \$4,790.00 – grant expenditures went over budget by \$15.00. That \$15.00 was paid for by Keepers of the Waters general fund.

Metro Salmonid Grant expenditures addendum Jan – June 2001
Miscellaneous materials

Clay, glaze, and carving tools for building flowforms	\$ 505.20
Modeling clay for testing flowforms	\$ 63.11
Materials for Valerie Otani's Garden design classes	\$ 40.61
Copies, paper, computer time, photo developing for invitations to lectures, and school meetings for parents and community, and lectures given by me at PSU to promote Da Vinci water project	\$ 134.82
Supplies for building large group flowform during Sven Schunemann work with students	\$ 260.34
Food for design charette	<u>\$ 35.08</u>
	\$1,039.16

PROJECT STAFF / WORKERS / VOLUNTEERS

Project Staff:

Erin Middleton - Project Coordinator

Volunteers:

Da Vinci Teachers

Dan Evans
Mary Morris
Shannon Wasson
Connie Cheifitz
Diane Ferguson
Tom Breuckman
Ana Quinn
150+ students at DaVinci

Keepers of the Waters members

Kelly Rodgers
Anne Mavor
Neal Aronowitz
Peg Butler
Clint Gorthy
Akhri Troncelliti
Joseph Christman

Parents and students at Design Charette

Sharon Hennesy
Kathy Budas
Lisa Comer
Vania Parente Schoen/Davie Schoen
Sterling Hooten
Kristin SweeneyOle Ersson

Sarah Spathas/Johnny Spathas
Pam/Michael/Spencer Knowles
Natalie/Denise Groce
Melissa Powers
Emma/Noia Weber
David Whitaker

Engineers/Landscape Architects/ Hydrologists/ and other professionals at Design Charette

Amber Marra
Ann Baker
Chris Boyce
Christine Perala
James Kohn
Jim Schalin

John Gardiner
Kelty McKinnon
Lara Utman
Nancy Bond
Narada Golden
Pat Lando
Scott Dethloff

Professionals hired to work w/ students

Sven Schuneman
Marc Companion
Valeria Otani
Suzanne Sigafos

WHAT WORKED / WHAT DIDN'T / HELPFUL HINTS
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What worked:

Partnering with outside professionals
Developing innovative projects with teachers to introduce concepts to students
Getting parent involvement
Public speaking opportunities
Student participation and interest was high
Getting support from city departments
Using an invitational approach with teachers
Having an outside organization like Keepers of the Waters facilitate and support teachers from the inside. Being able to ask them "How can I help you make this happen in your classroom?" Assisting them in finding professionals to present classroom projects.

What Didn't

Limited control over what teachers actually took on.
Changes in school schedule, testing dates etc... could easily derail specific tasks/ assignments.
Trying to work with school on end of year celebration—major scheduling conflicts, and a change in focus by teacher in charge made it impossible to have it be the community wide event we envisioned.
Finding an effective way to communicate with parents—even with articles in the school Newsletter—I never really knew if they were reading it!
While I got many interested parents who wanted to participate, it was more difficult than I thought plugging them into projects at the school— time constraints, last minute changes in programs.
It was difficult getting quality documentation of this project— teachers and students were in large part responsible for photography and much of it—in the end was poor quality :(

Helpful Hints

We approached this project as an invitational to teachers. Those teachers that were excited or inspired to get involved did, and those that were uninterested—or overwhelmed didn't. I think this worked better than trying to get full teacher participation. The projects that happened were high quality and satisfying for the students and teachers.

HOW PROJECT RELATES TO THE GREENSPACES PROGRAM

The Metropolitan Greenspaces Program, a partnership between U.S. Fish and Wildlife Service and Metro, provides funding for urban projects that emphasize environmental education, habitat enhancement and watershed health.

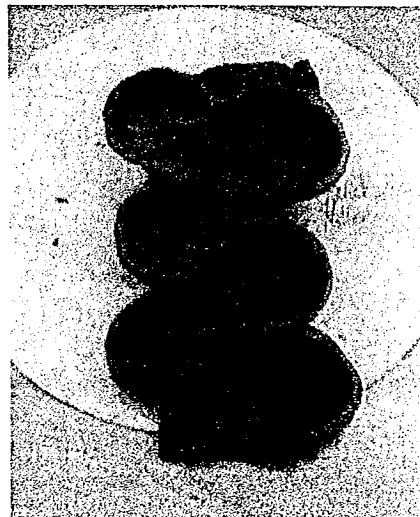
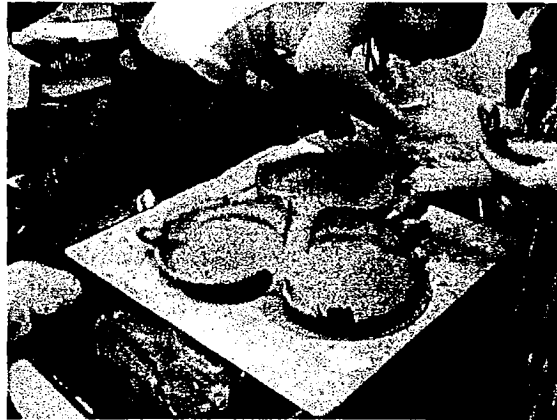
This project was part of the first phase of a larger project happening at a school, directly impacting over the course of it's execution, hundreds of students and their families, not to mention the people living in the surrounding neighborhood. It's primary objective is to demonstrate innovative, low-tech, sustainable stormwater treatment systems, and rainwater harvesting solutions that can be built by anyone, within the context of an artistically designed greenspace.

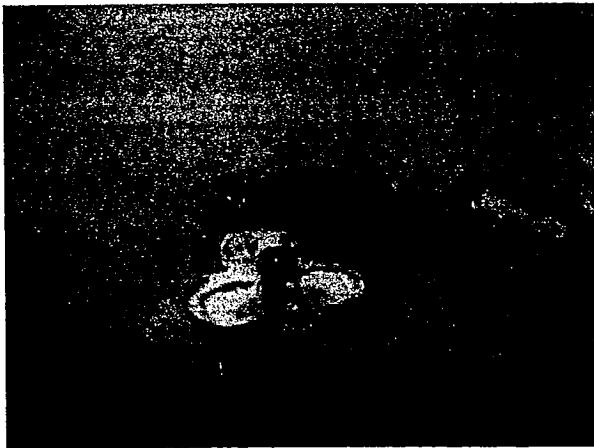
Designing a garden based on these principles will create a meeting place for the community to witness sustainable practices in action. It can become a model for smaller backyard solutions for homeowners, and provide the inspiration for more people to become responsible about wise use of our natural resources.

Entrusting these solutions to students allows them to participate in responsible environmental stewardship in their own immediate environment. It creates ownership on their part in protecting the health of their part of the watershed, while empowering them to educate their parents and larger community about the effects of non-point source pollution on our entire watershed. Creating a living water garden at Da Vinci Arts Middle School will provide habitat for wildlife and a living science lab for future students at the school.

PHOTOS

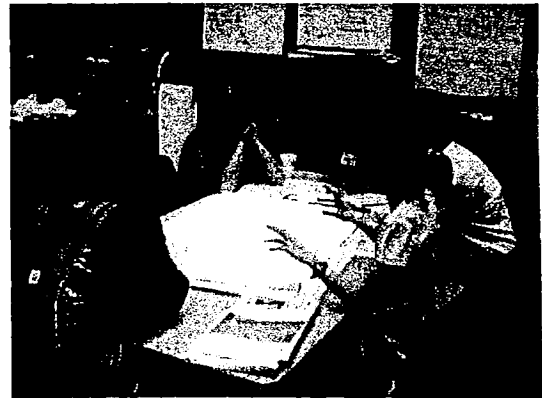
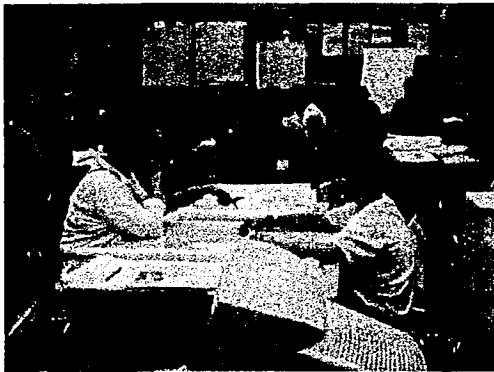
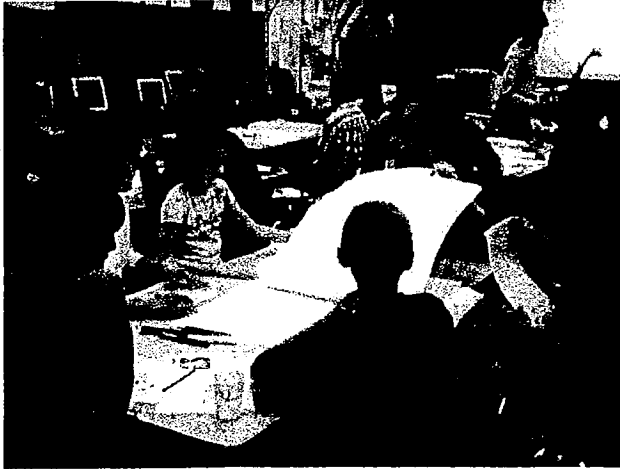
Students making individual flowforms for use in their back yard, and as preliminary models for the future water garden at daVinci.

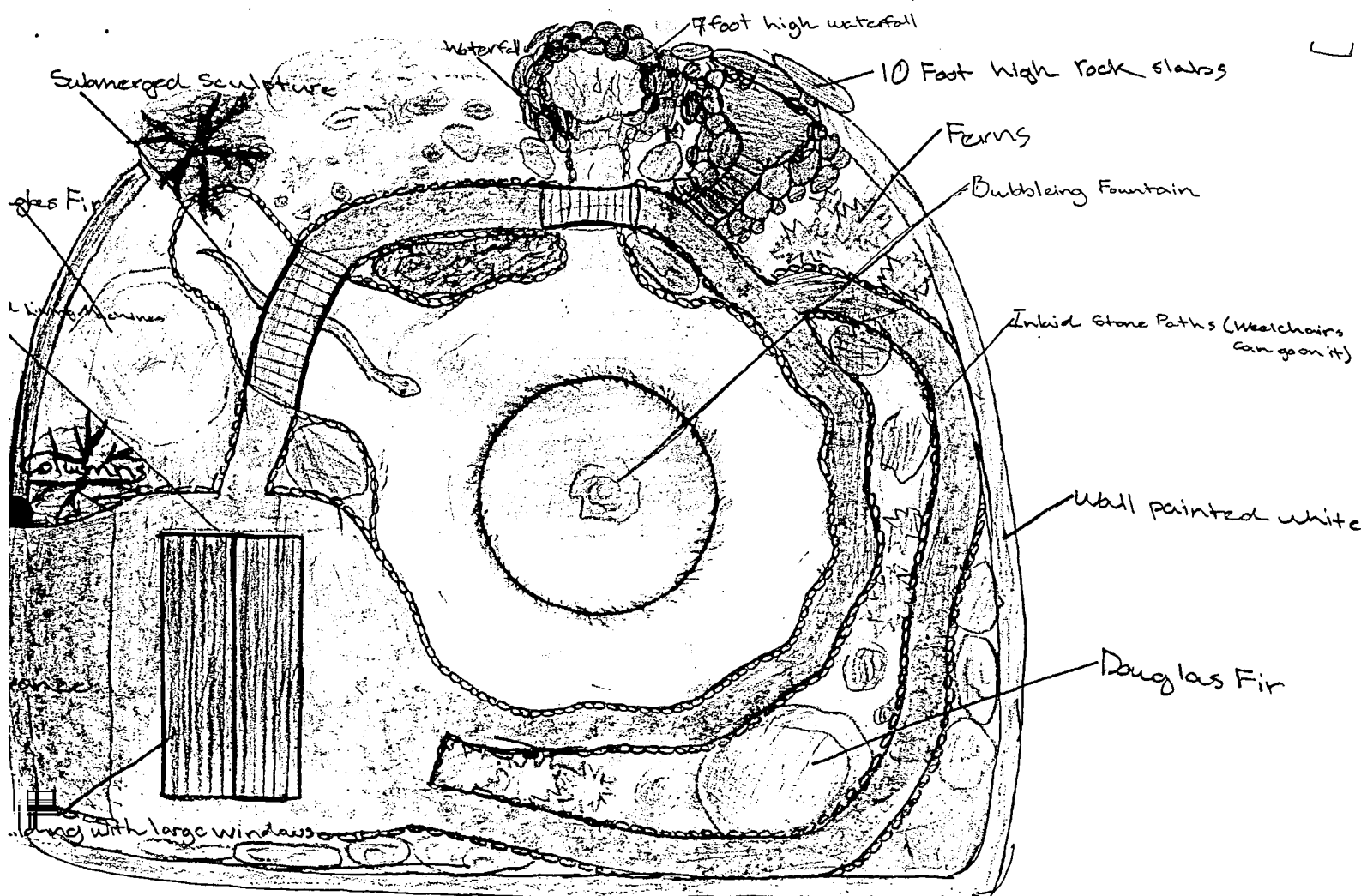


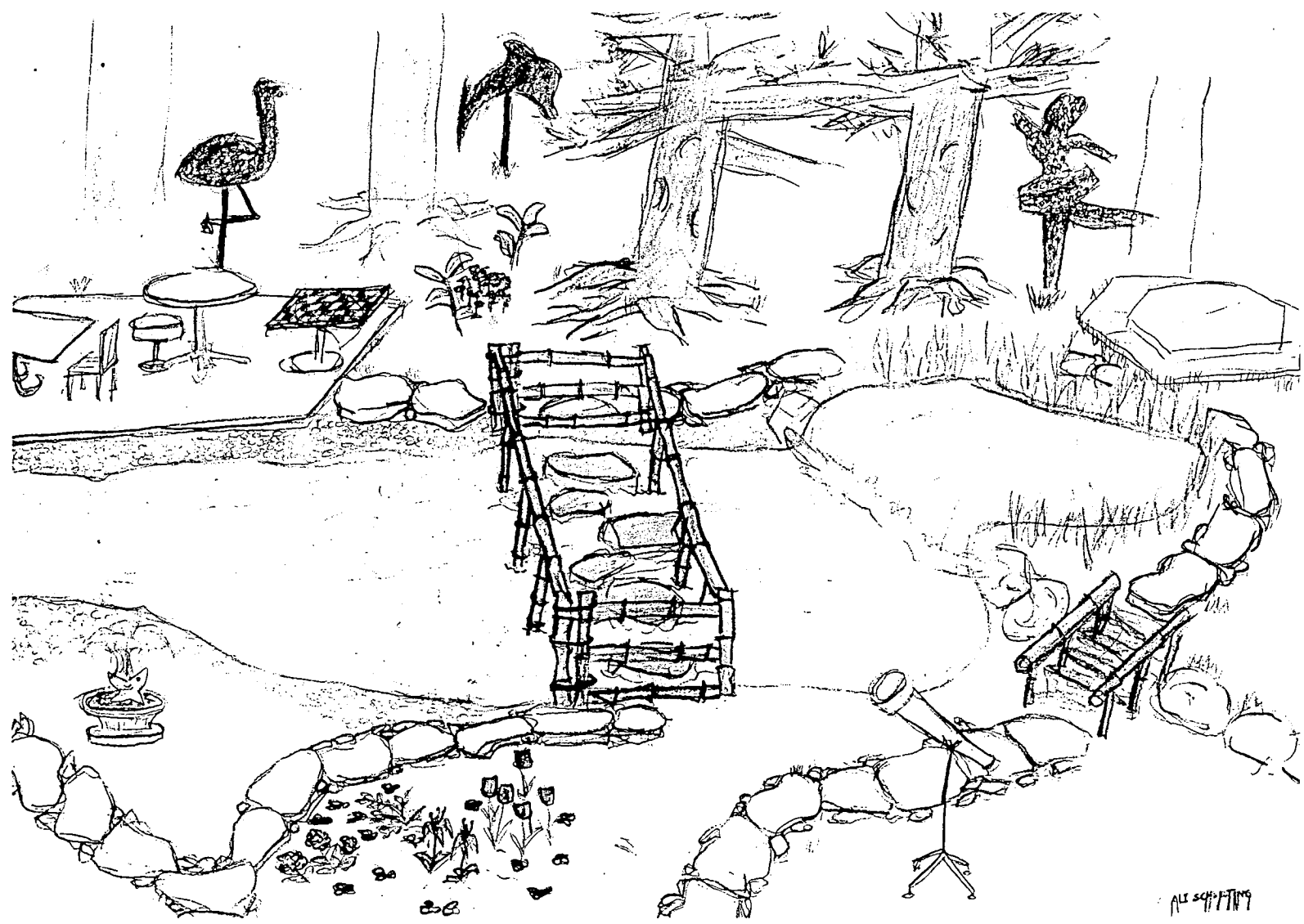


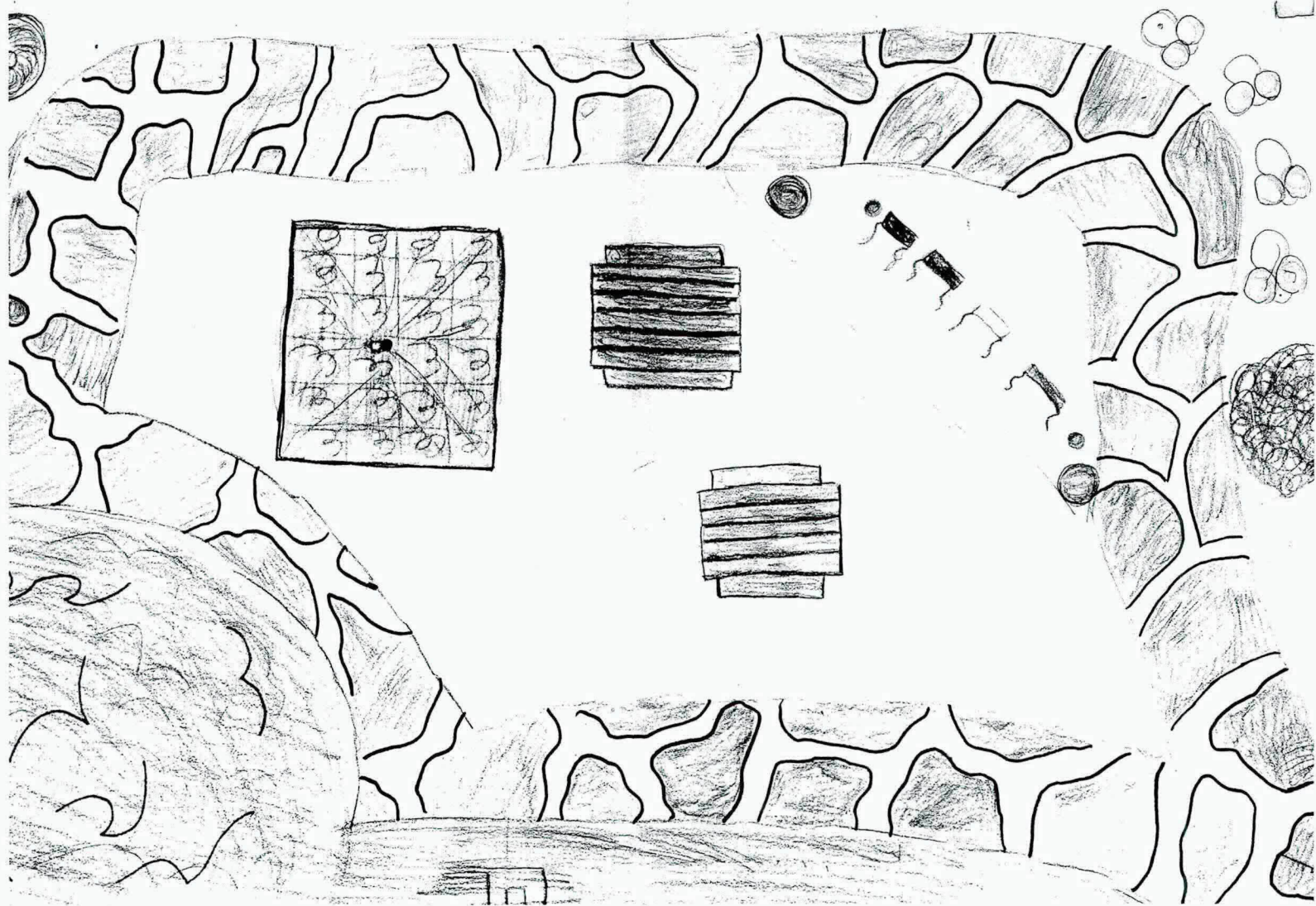
END OF YEAR DESIGN CHARETTE

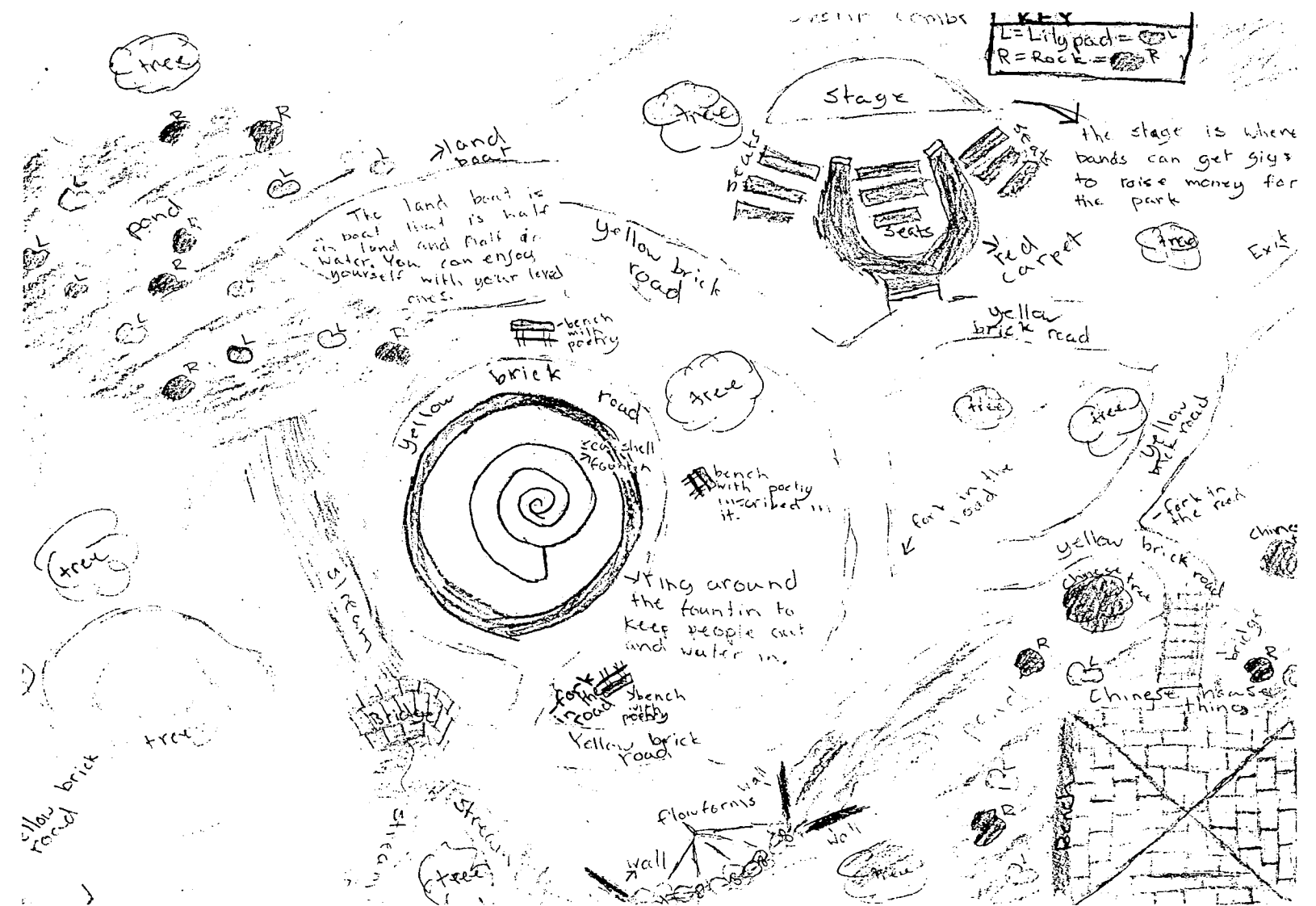
36 students, parents and professional engineers, landscape architects and others, take part in design brainstorming for the future daVinci water Garden

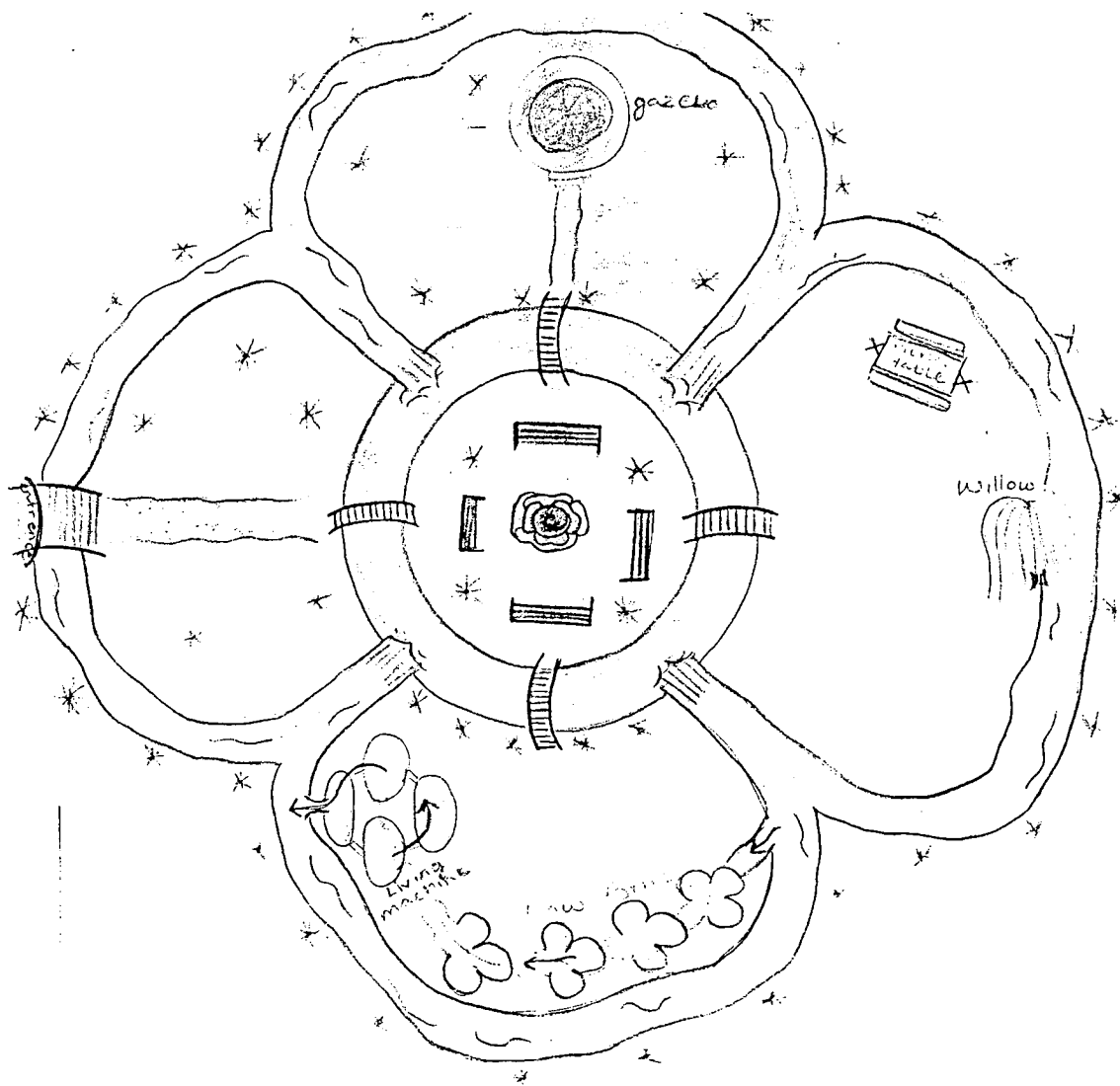












- Key
- fir trees
 - = water
 - = grass
 - = Bridge
 - = path

Proposal for daVinci Water Garden

By Geneva Hooten

4/15/01

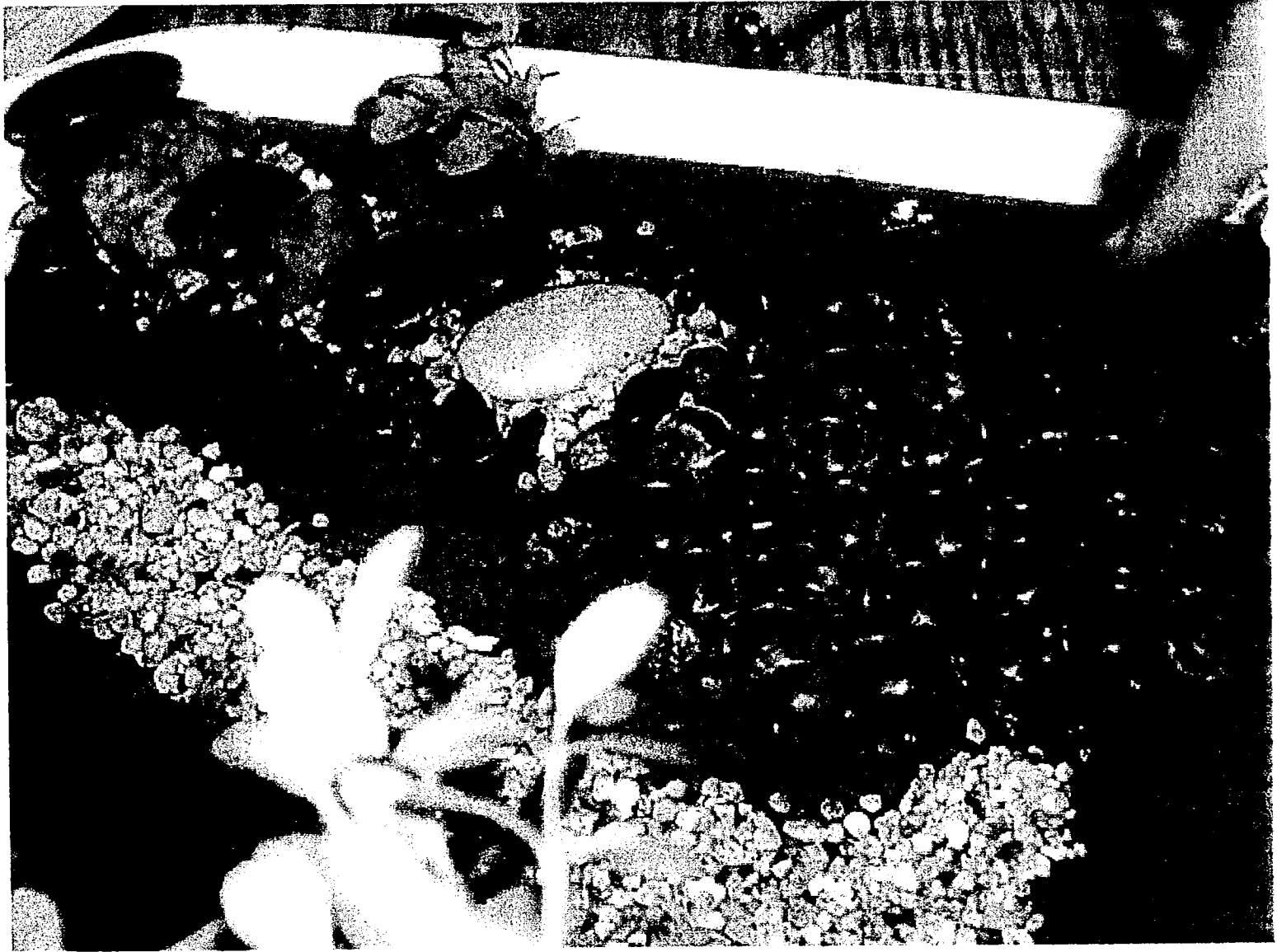
I have tried to design a garden, that uses water and plants to capture the feel of nature and peace. In this garden I have a bridge at the entrance. This is the focal point of my garden. Underneath the bridge is a pond with a rock fountain with water plants such as lilies surrounding it.

On either side of the bridge there are covered benches so you can enjoy the water and natural beauty. The canopies over the benches serve for a dry and more enjoyable rest. While you are sitting in the benches you can hear the soft sounds of water coming from flow forms. The flow forms are coming from two sides and spilling into the pond.

There is a brick path around each set of the flow forms. Then the path curves into a water drop pattern. The water drops are symbolic of the rain in Portland. On every other drop are trees and bushes, so one wouldn't see the actual size of the garden. This technique was originated from Chinese gardens.

Towards the sides of the garden are grass and stone in a checkerboard pattern. The purpose of this is so you can really feel the earth under you and to realize what surrounds you.

In this garden I used techniques and designs of others to create a natural, flowing, and peaceful environment, for people of all ages to enjoy.



Geneva Hook
May 17, 2001

PANTOUM STARTER KIT:

Water is the abundant source of life	1
It nourishes the body and soul	2
Water is pure as the mind	3
Crisp and refreshing	4

It nourishes the body and soul	2
Water is crystal clear	5
crisp and refreshing	4
It calms the restless	6

Water is crystal clear	5
It bubbles and gurgles	7
Water calms the restless	6
and swallows energy as it comes	8

It bubbles and gurgles	7
Water is pure as the mind	3
and swallows energy as it comes	8
Water is the abundant source of life	1

by: Lauren F.
Angela R.

PANTOUM STARTER KIT: Nature's Liquid

water is the color of the sun in the day, and night sky, when it's late.	1
An oil-filled puddle under a car in a parking lot.	2
California, Oregon and Washington all lay at my ocean shores.	3
water is a silver snowflake falling from the sky.	4

An oil-filled puddle under a car in a parking lot.	2
I am a fizzing white waterfall in the Gorge.	5
Water is a silver snowflake falling from the sky.	4
Flowing through the middle of the city, lies a dirty, green river.	6

I am a fizzing white waterfall in the Gorge.	5
splashing the people as they walk down the street.	7
Flowing through the middle of the city, lies a dirty, green river.	6
I take on many different colors, from brown, to clear to blue.	8

splashing the people as they walk down the street	7
California, Oregon and Washington all lay at my ocean shores.	3
I take on many different colors, from brown, to clear, to blue.	8
water is the color of the sun in the day, and night sky, when it's late.	1

PANTOUM STARTER KIT:

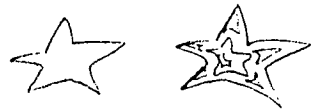
I am water crystal clear	1
independant and free	2
I am water flowing with no distractions	
I am water long long ago	4

independant and free	2
I am water captured and controlled	
I am water long long ago	4
Ruled, no longer my own.	6

I am water captured and controlled	
I am water drenched in oil	7
Ruled, no longer my own	6
A bad dream: the industrial age	8

I am water drenched in oil	7
I am water flowing with no distractions	
A bad dream: the industrial age	8
I am water, crystal clear	1

Brittany Q
Zoe K. S



PANTOUM STARTER KIT:

A monk is like a silent lake	1
Water, freefalling like a skydiver	2
A clear glass like the Nile River	3
A creek like a dripping faucet in the night	4

Water, freefalling like a skydiver	2
Water slips through your hands like chinese silk	
A creek like a dripping faucet in the night	
Water is an imagination, it can take any form	6

Water slips through your hand like chinese silk	5
Myths of water vast generations unknown	7
Water is an imagination, it can take any form	6
Water is peaceful like a winters night	8

Myths of water vast generations unknown	
A clear glass like the Nile River	3
Water is peaceful like a winters night	8
A monk is like a silent lake	1

Garrett + Natalie

PANTOUM STARTER KIT:

Gushing through an unclear pipe,	1
flowing through a babbeling brook	2
as old as time	3
I formed the world	4

flowing through a babbeling brook	2
off the leafs of a tree	5
I formed the world	4
Dripping from a faucet	6

off the leafs of a tree	5
Puddling deep within the valleys	7
Dripping from a faucet	6
I give life	8

Puddling deep as/in the valleys	7
as old as time	3
I give life	8
Gushing through	1