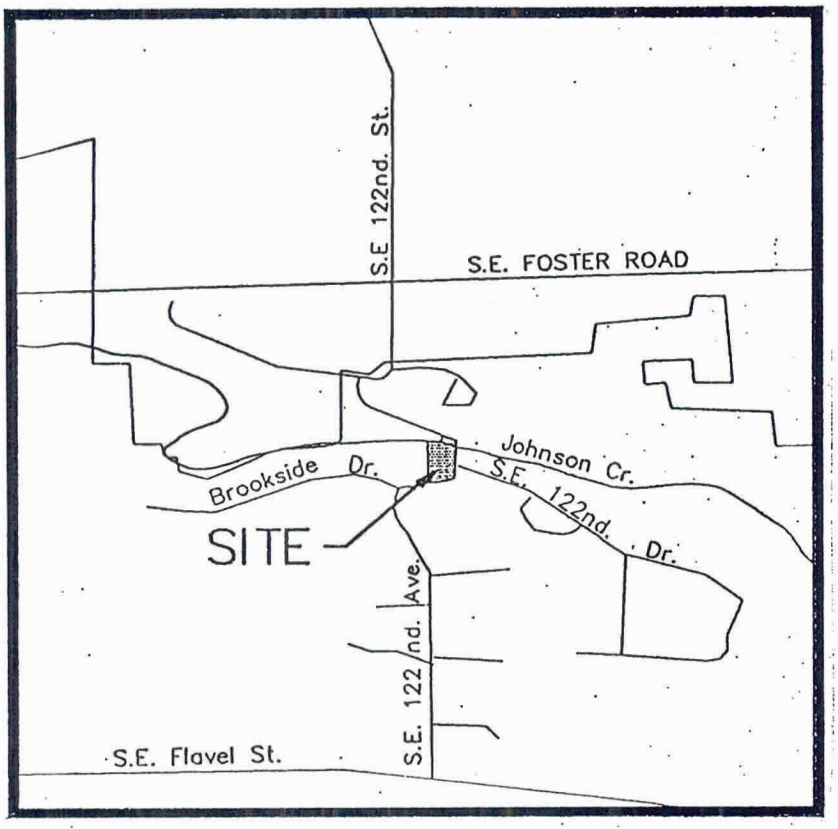
Leach Botanical Garden
Johnson Creek Water Quality Project

Sponsored by:
City of Portland
Bureau of Parks and Recreation

Funding Year: 1992

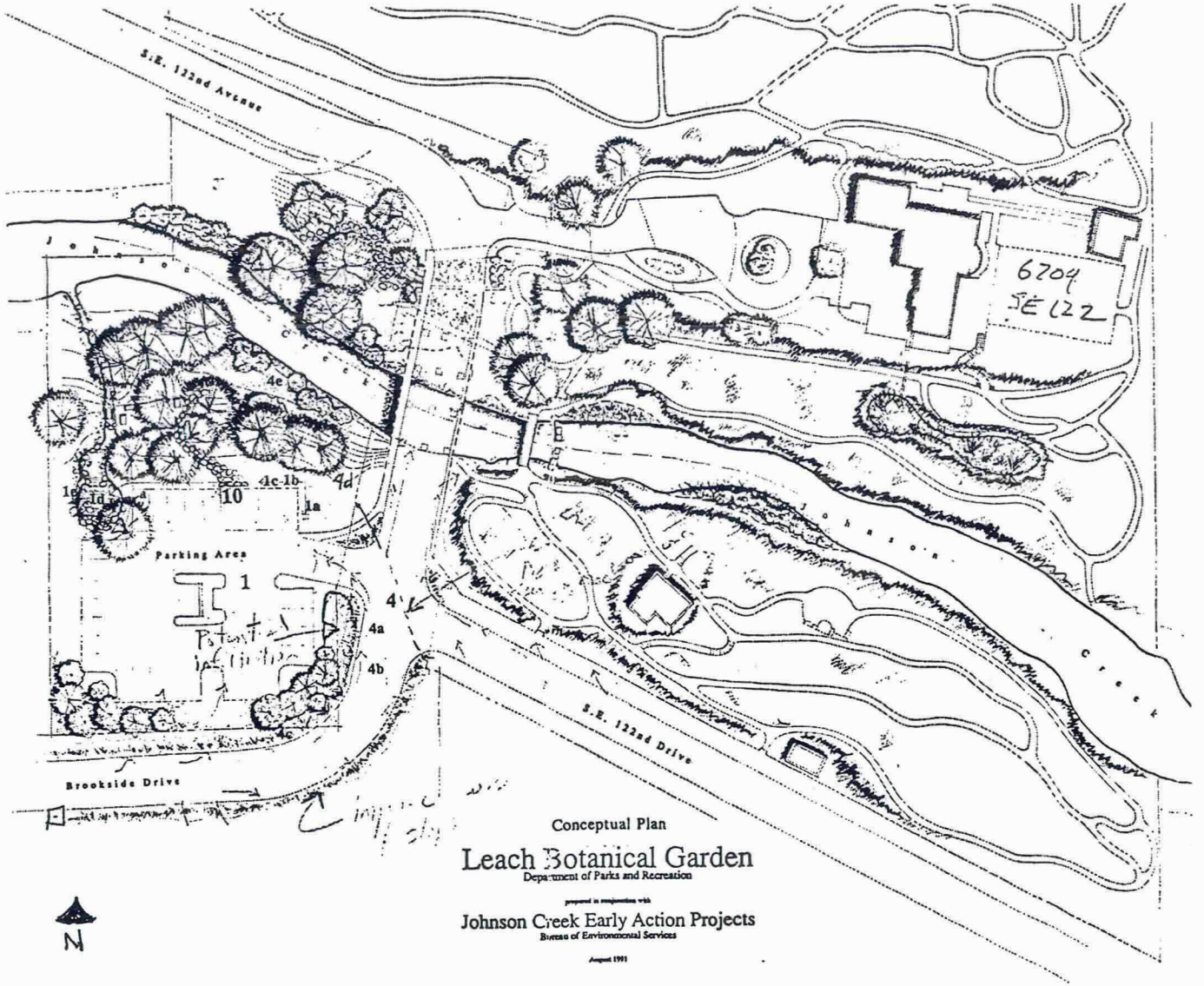
LEACH BOTANICAL GARDEN
JOHNSON CREEK WATER QUALITY PROJECT



1. PROJECT AREA MAP
LEACH BOTANICAL GARDEN
6704 S.E. 122nd Avenue
Portland, Oregon

LEACH BOTANICAL GARDEN
JOHNSON CREEK WATER QUALITY PROJECT

2. *PROJECT SITE MAP:* Leach Botanical Garden, 6704 SE 122nd Avenue, Portland, Oregon



Conceptual Plan

Leach Botanical Garden

Department of Parks and Recreation

prepared in conjunction with

Johnson Creek Early Action Projects

Bureau of Environmental Services

August 1991

1. PARKING LOT WATER QUALITY IMPROVEMENTS

- 1a Intercept Parking Lot Drain
- 1b Trench for New Drainage Pipe
- 1c Install Pipe
- 1d Excavate Treatment Area
- 1e Planting in Treatment Area
- 1f Excavate Cascade
- 1g Build Cascade
- 1h Develop Maintenance & Monitoring Program

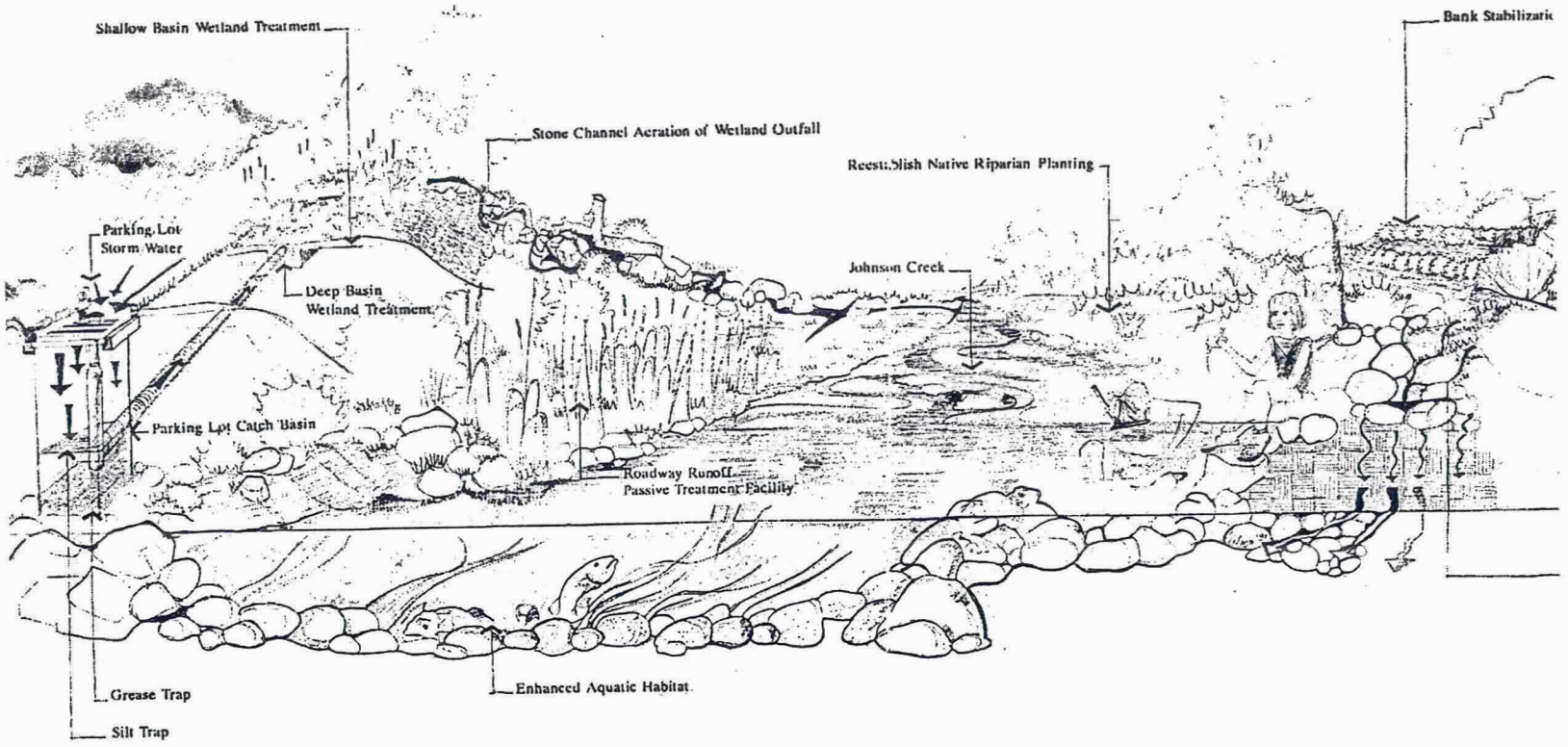
4. ROADWAY RUNOFF

- 4a Dye Program to Determine Sources
- 4b Monitor Flow through Winter
- 4c Study Open Channel Planting
- 4d Revegetate Swale.
- 4e Redirect West Pipe to Flood Plain Bench

10. TRAIL DEVELOPMENT

LEACH BOTANICAL GARDEN
JOHNSON CREEK WATER QUALITY PROJECT

2. *PROJECT SITE MAP (page 2):* Leach Botanical Garden, 6704 SE 122nd Avenue, Portland, Oregon



Leach Botanical Garden Water Quality Improvement Sectional Perspective

Photo Point 1a - From the north side of the swale looking south towards the parking lot, showing initial plantings - **1993**

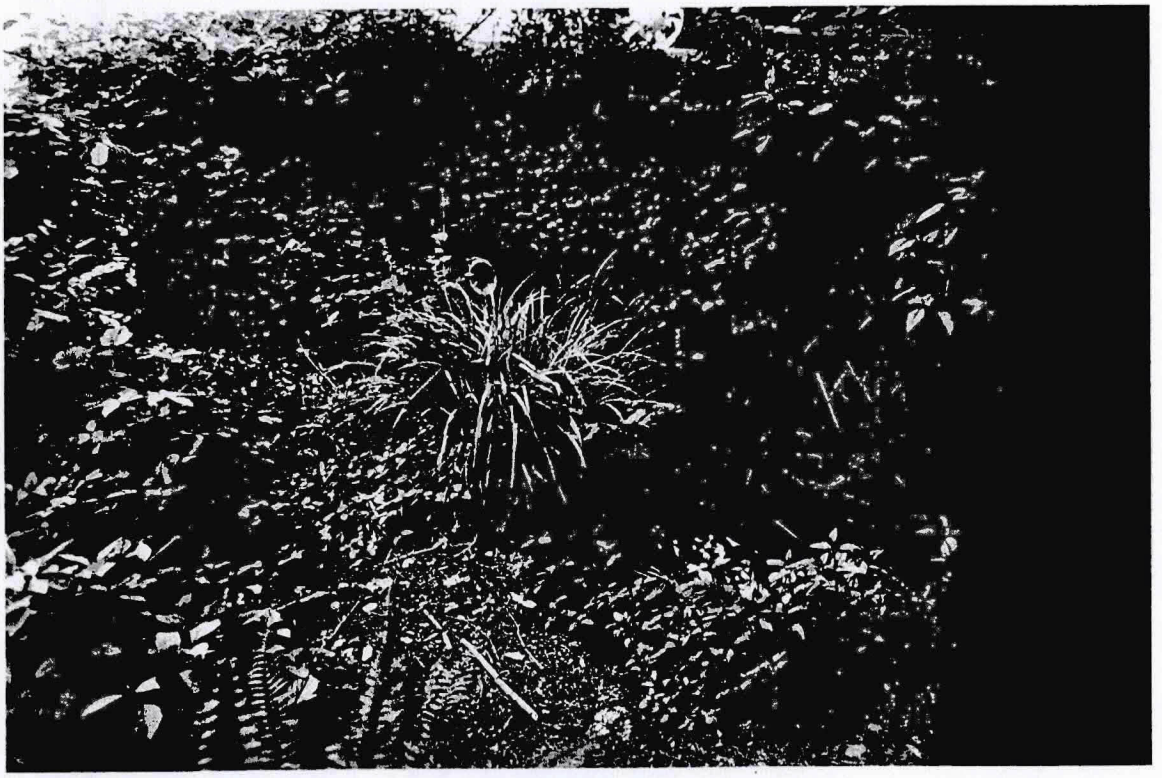
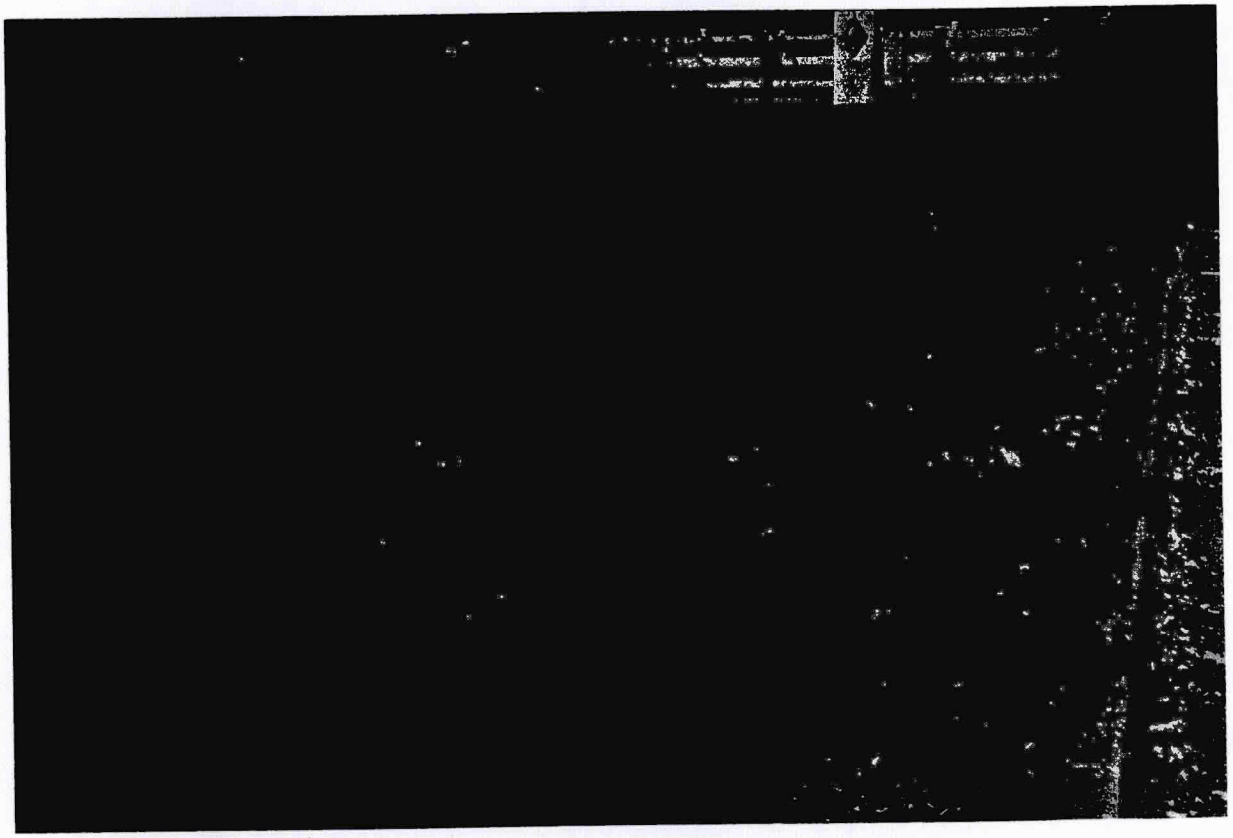
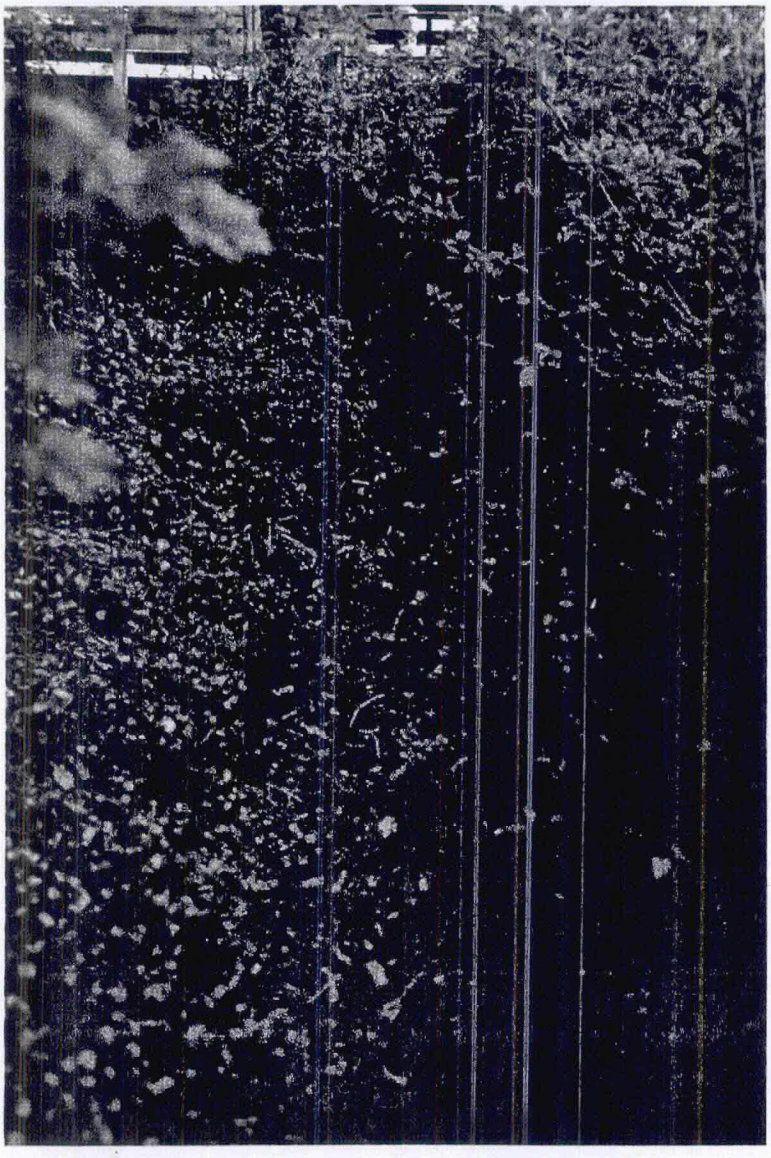


Photo Point 1a - From the north side of the swale looking south towards the parking lot, showing plantings three years later **1996**

AT LEFT:
Photo Point 2 - From the curb on the north side of the parking lot, looking east toward the park entrance during construction of trench and preparation for planting - **1992**

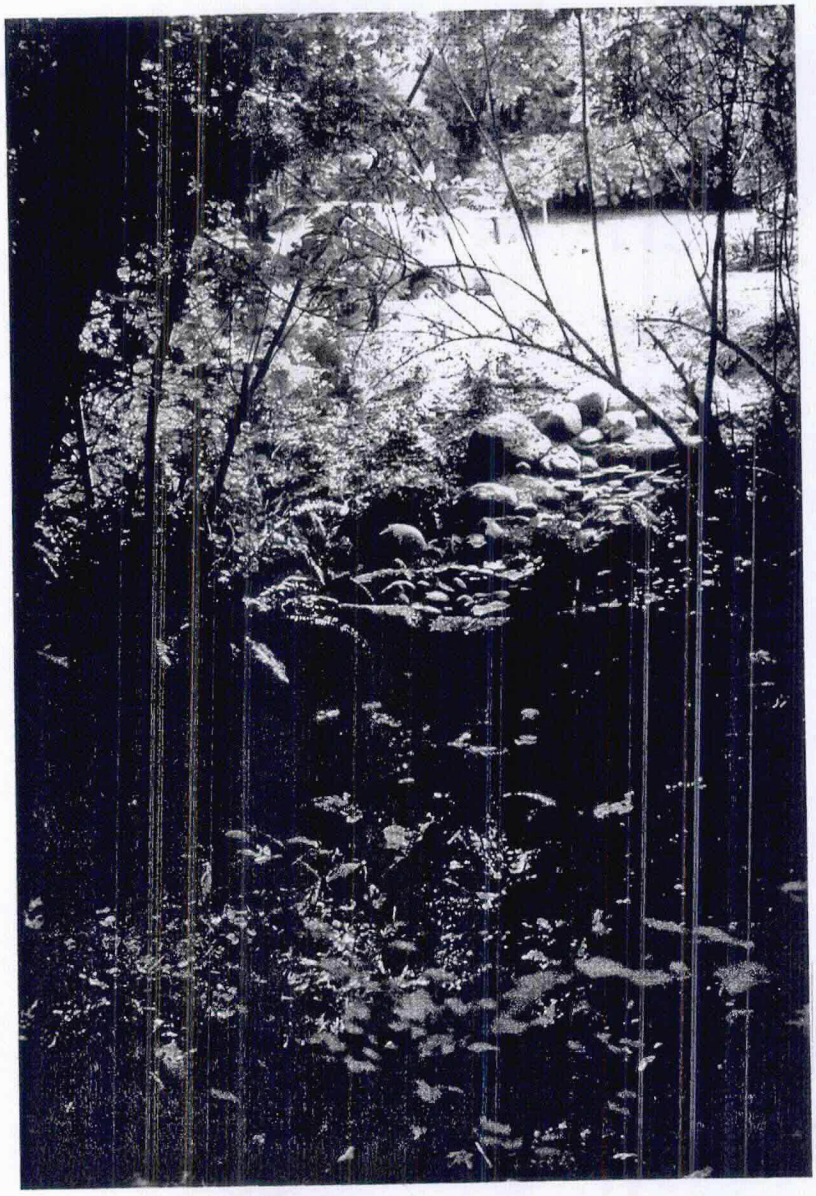
BELOW:
Photo Point 2 - From the curb on the north side of the parking lot, looking east toward the park entrance after initial plantings **- 1993**





AT LEFT:
Photo Point 2 - From the curb on the north side of the parking lot, looking east toward the park entrance along the trench, three years after construction and planting - **1996**

BELOW:
Photo Point 2 - From the curb on the north side of the parking lot, looking east toward the park entrance three years after plantings - **1996**



AT LEFT:
Photo Point 3 - From the bottom of the waterfall and swale looking east toward the parking lot - **1992**

BELOW
Photo Point 3 - From the bottom of the waterfall and swale looking east toward the parking lot - **1996**

Photo Point 4 - From the bottom of the steps leading to the trail looking east toward the parking lot. - **1992**

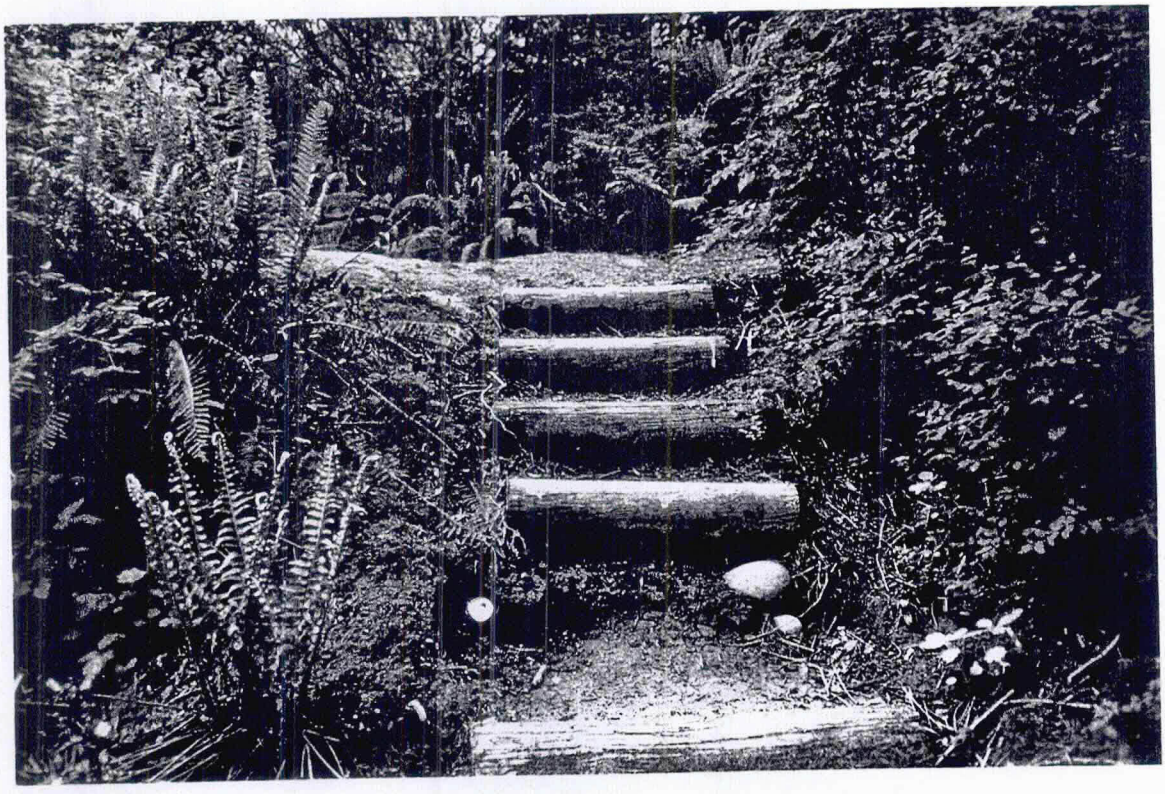


Photo Point 4 - From the bottom of the steps leading to the trail looking east toward the parking lot. - **1996**

4. *PROJECT DESCRIPTION:*

This project is located at Leach Botanical Garden, 6704 SE 122nd Avenue,. It was planned as a part of the City's efforts to improve water quality and wildlife habitat in the Johnson Creek Corridor. Included were the installation of parking lot stormwater controls, which directed runoff into a catch basin and across a vegetated swale into a pond and wetland area before entering Johnson Creek. Organic and human debris was removed. Non-native species were removed from the streambank and riparian zone and native species were planted to mimic natural associations. Vegetative and fence barriers were installed to limit human access , and narrow, meandering paths installed to encourage low-impact human presence in the area. These tasks were completed in 1992.

5. *GOALS AND BENEFITS OF PROJECT:*

This project has successfully met its objectives to:

- Demonstrate practical techniques for protecting Johnson Creek.
- Replenish riparian & wetland vegetation.
- Improve water quality through reducing pollutants in stormwater runoff.
- Improve wildlife habitat.
- Provide opportunities for public education and interpretation of watershed management.

6. *WORK TASKS AND TIMELINES:*

- Final Planning Designs Completed.....December 1991
- Planting Plans Completed.....April 1992
- Site Preparation Survey.....March 1992
- Vegetation Removal.....April 1992
- Excavation Work.....April 1992
- Rockwork Accomplished..... April 1992
- Plantings Established.....May 1992
- Signs Installed.....May 1992
- Catch Basin Constructed.....September 1992
- Catch Basin Modified.....December 1992

7. *PROJECT BUDGET:*

ITEM	ORIGINAL BUDGET	PARKS DEPT. MATCH	METRO	ACTUAL TOTAL
A. Personnel	$6,000	$5,500	$ 500	$7,570.25
B. Materials	$5,550	$1,500	$4,050	$ 792.25
C. Fees	$ 600	$ 500	$ 100	$ 321.40
D. Prof.Services	$3,000	$3,000	0	$ 550.00
E. Vol. Labor	$2,150	$2,150	0	$1,496.25
TOTALS	$17,300	$12,650	$4,650	$10,730.15

8. PROJECT STAFF/WORKERS/VOLUNTEERS:

	HOURS WORKED					
DATE	***LNDSCP ARCHITECT***	***WATER RES. ENGINEER***	***ENVIRON ENGINEER***	***LEACH. STAFF***	***VOL.***	
DEC 1991				3	65	
JAN 1992	20	20				
FEB 1992	20	20				
MAR 1992	30			33		
APR 1992		30		11	167	
MAY 1992			30	22	83	
JUNE 1992				32		
TOTAL HRS:	**70 @**	**70 @**	**30 @**	**101 @**	**315 @**	**TOTAL:**
$30/HR =	**$30/HR =**	**$30/HR =**	**$30/HR=**	**$10/HR(65) $9/HR(36)**	**$4.75/HR=**	
	$2,100	**$2,100**	**$ 900**	**$974**	**$1,491.50**	**= $7,570.25**

Volunteers on this project included Boy Scout troops, Camp Fire Groups, David Douglas students, and Pacific Northwest Experiment Station workers. Volunteer work included removing ivy, blackberries and debris and cleanup duties, as well as replanting native plants.

9. HOW PROJECT RELATES TO GREENSPACES PROGRAM:

This project has been a model of regional and cooperative efforts to preserve a natural areas in the middle of the City of Portland while improving water-quality in Johnson Creek, an urban stream. The diversity of groups working on the project added to better understanding of the importance of using native plants best adapted to this natural area. It was also a good example of the strengths of community groups in partnership with local government agencies.

The Johnson Creek corridor is included within the Greenspaces inventory as a critical wildlife habitat area and is and supportive of the goals, objectives, and policies of the City of Portland Bureau of Planning's Johnson Creek Basin Protection Plan (1991), developed to prevent the destruction and degradation of the City's remaining Goal 5 resources. The project is also consistent with the Bureau of Environmental Services' Johnson Creek Resources Management Plan. Finally, the project is consistent with the Leach Garden Master Plan.

10. WHAT WORKED/WHAT DIDN'T/HELPFUL HINTS

This completed project met all of the projected goals in a timely manner. For various reasons the reporting procedure was unclear for some time, partly due to the involvement of several groups, changes in personnel, etc. The project itself, however, was a success!

11. ADVICE FOR OTHER PROJECT MANAGERS

None available.

12. MONITORING AND MAINTENANCE PLAN

The Friends of Leach Gardens have been responsible for maintenance of the site since its completion. In addition to irrigation during summer months, the catch basin in the parking lot, the swale holding pond, and the trench arecleared of sediment as needed. Through an agreement with Portland Parks in May 1995, the East Multnomah Soil and Water Conservation District assumed reporting responsibilities and with the assistance of the Natural Resource Conservation Service staff will provide monitoring and recommendations to the Friends of Leach Gardens.

Attachment: Handout on Ponds & Wetlands Construction

Leach Botanical Garden
Ponds and Wetlands Construction

Water Quality Improvement

The ponds and newly planted areas just below the parking lot are actually helping to improve the water quality in Johnson Creek. This project will reduce pollutants found in water that runs off the pavement.

Bio-engineering Technique

As rain water travels across the parking lot (an impervious surface), it picks up contaminants such as oil, antifreeze, heavy metals, grit and dirt. The parking lot drainage is directed into the ponds and planted areas. As the water slowly moves through each pond and planted area, the grasses and other vegetation filter out contaminants. Water quality is improved without machines, chemicals, or undesirable structures.

Cost Effective

This bio-engineering technique, can be applied to almost any area that requires drainage of impervious surfaces. These ponds, miniature wetlands and grassy areas, reduce water pollution, increase wildlife habitat and save money compared with more traditional methods of installing pipes to drain areas.

Johnson Creek Resources Management Plan

The pond and wetland construction is just one of the many Early Action Projects along Johnson Creek being intiated by Portland's Bureau of Enviromental Services. These projects are part of the Johnson Creek Resources Management Program. Each project will demonstrate techniques for improving water quality and flood reduction while also preserving or enhancing fish and wildlife habitat, aesthetic and heritage values, and the human environment.

Johnson Creek Corridor Committee

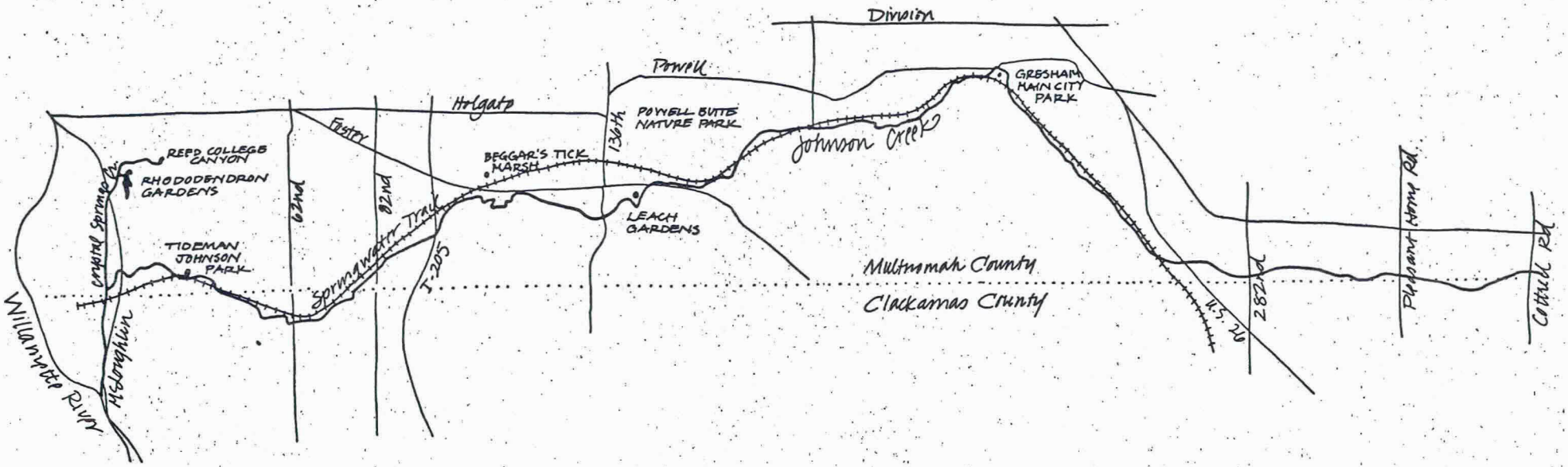
The Johnson Creek Corridor Committee (JCCC), is a group of about 30 area residents and agency representatives, who are working together to recommend a Johnson Creek Resources Management Plan to the cities and counties in the Johnson Creek Watershed.

If you would like to get involved in some of the Early Action Projects or the Johnson Creek Corridor Committee call the Urban Streams Resource Line at 692-1448.

City of Portland
BUREAU OF ENVIRONMENTAL SERVICES
Bureau of Parks and Recreation

See map on back to find other sites along Johnson Creek to visit and explore.

Johnson Creek Basin Map



Leach Botanical Garden, Johnson Creek Water Quality Project
Final Report, June 1995
City of Portland, Bureau of Parks and Recreation

Project description: At Leach Botanical Garden, 6704 SE 122nd Avenue, installed parking lot stormwater controls, directing runoff into a catch basin and across a vegetated swale into a pond and wetland area before entering Johnson Creek. Organic and human debris was removed. Non-native species were removed from the streambank and riparian zone and native species were planted to mimic natural associations. Vegetative and fence barriers were installed to limit human access , and narrow, meandering paths installed to encourage low-impact human presence in the area. These tasks were completed in 1994. .

This report documents the status of the installation as of June, 1995, and evaluates the success of the objectives.

Objectives of this project:

- Demonstrate practical techniques for Protecting Johnson Creek.
- Replenish riparian & wetland vegetation.
- Improve water quality through reducing pollutants in stormwater runoff.
- Improve wildlife habitat.
- Provide opportunities for public education and self-interpretation of watershed management.

Evaluation:

Vegetation: Native species planted in the riparian zone, including the vegetated swale, are well-established and provide good cover. There has been some regrowth of non-native species (blackberry, wild morning glory) on the bank, but it is minimal, not intrusive, and should be easily controlled. Wetland plants are established and show evidence of forming a balanced wetland community over time.

The area (relatively small) directly underneath the south side of the bridge shows evidence of trampling; some areas of soil are exposed and hardpacked. Attempts to establish vegetation and modify soil texture in this area appear to be only marginally successful. Part of problem may be that though bank is steep, access to this area is still possible from bridge. Judging from size of footprints, it appears that youngsters are using the area, not understanding the impacts of their activities. Despite this, the well-established areas on either side of the bridge have not experienced damage.

Parking area runoff quality: BES conducted a sediment evaluation of runoff from the parking lot and found a 50% reduction of sediments in runoff entering the wetland area from the vegetated swale. The pond appears to be serving as an infiltration area as well as a settling pond. Additional settling would take place in the wetland prior to runoff entering the stream. Water entering the stream from the wetland appeared clear. Tests made of samples taken after the completion of the swale also indicated that no oil is entering the system, and fecal coliform count was within health liimits.

Public access: Well-defined pathways are doing a good job of limiting access to the streambank. Paths are narrow and meandering, encouraging leisurely strolls and frequent stops. Vegetative and unobtrusive fence barriers also successfully limit

access both to streambank and wetland areas. There is no evidence of human or organic debris in the area.

Wildlife habitat: The well-established vegetation provides usable habitat for birds, insects, reptiles, and small animals. Birds use the area extensively for feeding and nesting, and there are signs of reptile and small animal activity in the area. Shade and pools should provide fish habitat, although none were seen at the time of the evaluation.

Education opportunities: Attractive, easy-to-read signs explaining each of the streamside areas (bog, wetland, riparian zone) enable self-guided tours and provide an understanding of the composition and functions of each of these areas. In addition, the areas are used as by both public schools and community groups as an educational resource.

Summary: Project has successfully met its objectives to enhance riparian and wetland functioning, provide wildlife habitat, improve water quality of stormwater runoff entering Johnson Creek from Leach Gardens parking lot, and providing opportunities for education, about both healthy streambanks and watershed management techniques.

Area directly under bridge still needs attention. Additional barriers to access from bridge and neighborhood outreach/education could help minimize trampling, allowing better success of attempts to revegetate. Because trampling is limited to only the area by the bridge, it appears that there is a high degree of respect for the integrity of the area of the stream associated more directly with Leach Gardens.

report prepared by: *Dayle Ann Stratton, District Coordinator*
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231-2270 FAX 231-2271

PROJECT DESCRIPTION. (Attachment #1)

Location of Project.

The project is on property owned by the City of Portland. It is the responsibility of the Bureau of Parks and Recreation. The property is known as Leach Botanical Garden and is managed by the Friends of Leach Garden, a tax exempt non-profit corporation. The legal description is:

Tax lot 49 of Section 23, 1 S, 2 E.

Street address of Leach Botanical Garden is 6704 SE 122nd Ave. The project site is across (west of) SE 122nd Avenue from the main portion of the Garden and the Leach Garden residence. Also described as immediately north of the parking lot.

The project site is along the south side of Johnson Creek at the north end of tax lot 49. Quarter Section Map 3743 showing the tax lot is attached. Also attached is a map of Leach Botanical Garden showing the project site.

The project is located near stream mile 9 (approximate).

Project Narrative and Objectives.

The project is a component of the City's efforts to improve water quality and wildlife habitat in the Johnson Creek Corridor. Johnson Creek is officially listed as a "water quality limited" stream by the State of Oregon. Improvements in the water quality of Johnson Creek will be made through the use of natural pre-treatment techniques for water as it enters the stream.

The Johnson Creek Water Quality Swale at Leach Botanical Garden will employ natural water treatment techniques. It involves the construction of a water quality facility while improving the ecological integrity of the site.

The project will consist of several major elements:

- Creation of a vegetated swale to provide water quality enhancement for local run-off.
- Replacement of non-native vegetation with native vegetation representative of riparian and wetland vegetation communities.
- Reconstructiotion of the catch-basin in the vistor parking lot.

- Minimize unwanted human impacts in the project area through the development of discrete access points, trails, and the use of perimeter barriers.

- Educational opportunites for watershed management practices, water-quality control techniques, and the role of community stewardship of natural resources.

The objectives of the project are:

- Implement a model project in support of the Johnson Creek Basin Protection Plan (Bureau of Planning) and the Johnson Creek Resources Management Plan (Bureau of Environmental Services) which demonstrate techniques that have practical application for property owners in the Johnson Creek watershed.

- Replenish riparian and wetland vegetation communities in the Johnson Creek watershed.

- Improve in-stream water quality.

- Improve water quality from local storm water collection systems before discharge into the creek.

- Improve wildlife habitat.

- Provide an opportunity for public education and self-interpretation of improved watershed management practices in the community.

Problems which are being addressed and how they will be solved.

Present Situation:

At present portions of the site are infested with Himalayan blackberry, a common and invasive non-native plant on disturbed uplands. The creek is channelized, although during high water some streamside flooding does occur. A significant vegetation debris pile exists on the site. Runoff from the adjoining parking lot and from roadside ditches enter Johnson Creek on or near the site. Organic debris has accumulated on the site as a result of landscape development and maintenance.

Johnson Creek has been termed a "water-quality limited" by the Oregon State Department of Environmental Quality. Chronic pollutants include pesticides, heavy metals, and bacteria. Creek is frequently silty in appearance.

A two-lane bridge spans the creek on the east edge of the site. No vegetation exists under the bridge. There are virtually no controls on public access to the site, however, human impacts appear to be light.

Problem: Johnson Creek has poor water quality.
Solution: Construct a vegetated swail to provide bio-filtration and sediment collection for a portion of the flow.

Problem: Surface run-off from nearby streets and adjacent parking lot enters Johnson Creek directly.
Solution: Modify the parking lot catch basin to direct run-off from these hard surface areas through the vegetated swale for bio-filtration, sediment collection, infiltration, and velocity reduction before discharge into Johnson Creek.

Problem: Pile of organic debris is a potential source of unwanted nutrient loads, oxygen depletion, and sedimentation.
Solution: Remove accumulated pile of organic debris and plant native vegetation.

Problem: Leadership and education roles are presently unfilled in the Johnson Creek watershed area with respect to streamside landscape issues.
Solution: Leach Garden would be able to provide the needed leadership through implementation of this demonstration project. The Leach property is a typical Johnson Creek streamside landscape. Garden is well situated geographically and is already providing education programs in related areas.

Benefits and values of the project.

There are direct environmental benefits to water quality and wildlife habitat resulting from the project's vegetated swale. There are also benefits for flood reduction through the infiltration in the swale.

With the opportunities for education and interpretation, the chief benefit will be improved water quality and wildlife habitat in the Johnson Creek watershed through the adoption of improved management practices by other property owners.

A significant value is the establishment of the idea that property owners need to accept responsibility for doing what they can to improve the situation in the Johnson Creek watershed. Property owners must realize that their collective efforts have a major impact on the quality of water and wildlife habitat of the entire system.

The project will be documented from beginning to completion to serve as a guide for the process of addressing problems and issues using a multi-objective approach. Information will be published and distributed by the City of Portland explaining how the City's resource protection plans and management plans can be used to make site improvements.

How the project is consistent with objectives of Metropolitan Greenspaces Program and local plans.

Using community groups and governament agencies to implement this mutli-purpose environmental enhancement and water-quality facility, this project will be an exemplar of regional and cooperative efforts offering real solutions to urban natural area, water-quality, and watershed management issues.

Metropolitan Greenspaces is in the process of identifying critical wildlife habitat areas for consideration of some form of protection. The Johnson Creek corridor shows up clearly on the Greenspaces inventory. Perhaps the lowest cost form of protection of wildlife habitat is well informed private stewardship. This project will encourage good private stewardship by first demonstrating it on public property.

The Project is consistent with and supportive of the goals, objectives, and policies of the City of Portland Bureau of Planning's Johnson Creek Basin Protection Plan (1991), developed to prevent the destruction and degradation of the City's remaining Goal 5 resources. The project is also consistent with the Bureau of Environmental Services' Johnson Creek Resources Management Plan (under development). Finally, the project is consistent with the adopted Leach Garden Master Plan and its revised edition (now in final draft).

Coordination of the project with other agencies, non-profit organizations, neighborhood associations, and citizens.

Through the Johnson Creek Corridor Committee (JCCC), the Project will become generally known by all interested in the Johnson Creek watershed. The JCCC is coordinated by the Bureaus of Environmental Services and Parks and Recreation and includes representatives from other agencies, neighborhoods, ad hoc organizations, property owners, and interested citizens.

How will the project promote public awareness of natural areas preservation and the Greenspaces Program?

This Project has these advantages:

- The site is at a highly used public facility.

- The project is directly in line with the educational objectives of Leach Botanical Garden.
- The site is easily viewed from the pedestrian walkway on the 122nd Avenue bridge.
- More information on the project and on Greenspaces could be easily obtained from Leach Garden across the street from the project site.
- Classes and tours utilizing the project site could be developed.

What educational (and interpretive) opportunities will the project provide?

The Project site can be easily incorporated into the Leach Garden Education Program and into Leach Garden Tours. An interpretive sign could be placed on the bridge or in the parking lot overlooking the project site. Guided tours into the site itself could be handled by Leach Garden in a manner that minimizes negative impacts.

The project will provide the following educational opportunities:

- Watershed management issues and strategies;
- How to address watershed problems using a multi-objective approach;
- Water quality issues;
- Land use planning and resource protection;
- Bio-filtration and bio-engineering;
- Wildlife habitat;
- Wetland ecology;
- Native plant communities (wetland and riparian);
- Specific issues related to Johnson Creek;
- Permit process.

ENVIRONMENTAL IMPACTS. (Attachment #2)

Describe the topography and present development/vegetation/wildlife habitat of the site. Describe the surrounding area, adjacent land uses, and the interrelationships with adjacent areas.

The predominating feature of the site is Johnson Creek and its ravine. The creek flows all year and is subject to severe "flashing" during storm events. The ravine is pronounced and the streambed is well defined and is generally worn down to rock and gravel. There is a moderate riparian bench about 1 to 1-1/2 feet above the ordinary high water on the north side of the creek. This bench is infested with blackberries. There is a higher riparian bench on the south side of the creek. It is adjacent to the Leach Garden parking lot.

The site was owned privately until the City acquired it about 10 years ago. A small residence was on the property, but south of the project site area.

On the north edge of the site is a sharp embankment up to SE 122nd Avenue as it drops down to a bridge across Johnson Creek. Immediately upstream (east) is the 122nd Avenue bridge. Immediately to the south is a paved parking lot which services the Leach Garden. It is the only developed parking lot for the Garden. Stormwater drains from the bridge and the parking lot.

Further upstream is the older portion of the Leach Garden.

Upstream and downstream from the Garden, the area is generally residential with private backyard landscapes addressing Johnson Creek from both sides.

The area is subject to further residential development through "infilling" of large lots and conversion of the remaining hobby farms into suburban residential density. Such development is occurring at present. The predominant residential zoning appears to be R10, denoting a minimum lot size of 10,000 square feet.

What is the zoning of the site? What is the comprehensive plan designation of the site?

The project site is zoned OSs for Open Space with a Scenic designation. At present a Recreational Trail is shown on the site along the creek. However, the proposed natural resource management plan for Johnson Creek calls for the removal of the Recreation Trail from this site. The natural resource management plan will also provide environmental protection for the site through the application of an "ep" overlay zone. A Master Plan for Leach Garden was adopted by the City in 1982 and is currently under revision. The

activities of the Botanic Garden are covered by a Conditional Use Permit.

The comprehensive plan designation for the site is the same as current zoning.

Describe the long-term management of the site.

The site will remain part of the Leach Botanical Garden. Due to opportunities on two other recently acquired parcels, the Garden will not need to expand its plant collections or formal gardens onto this site.

The previously noted Master Plan and City zoning provide guidance for long-term development and management of the site. These policies confirm a commitment to the long-term protection of natural resource values.

What agencies will monitor and be responsible for the site's environmental integrity?

The City of Portland's Bureau of Parks and Recreation by agreement has placed the Friends of Leach Garden in charge of management of the Leach Garden properties. If the Friends should ever fail in these responsibilities, the Bureau of Parks and Recreation would become responsible.

It should be noted that due to use of Land & Water Conservation Funds, the site is within the National Parks Service's "6, f boundary" for Leach Garden. Therefore, it may not be sold without review and approval by N.P.S. as administered by Oregon State Parks.

In addition, the City of Portland Bureau of Planning's environmental overlay zone, is in the process of being applied to the property. The e-zone is designed to protect Oregon's Goal 5 resources within the City of Portland. Due to the e-zone, an environmental review will be required by the Bureau of Planning before any permitted work could occur on the site.

Describe the following environmental elements which would be affected.

a) land use

Since the project will enhance certain wildlife habitat values through the creation of a small wetland and a intermittently wet swale, its environmental value as designated through the land use planning process would only increase. That is, the site would likely receive a higher numeric ranking during the next site inventory.

b) wildlife

Wildlife habitat should be enhanced by this project. In-stream water quality should be improved slightly. The created wetland will provide a small, but critically needed habitat.

c) vegetation

Vegetation will be improved through the suppression of the non-native Himalayan blackberries, through the planting of streamside riparian shrubs, and through the introduction of wetland plant species.

d) geology and soils

Geology and soils should not be impacted.

e) mineral resources

Mineral resources should not be impacted.

f) air and water quality

Impacts to air quality are negligible. Water quality should be improved both in-stream and as introduced to the stream from point and non-point run-off sources.

g) water resources and hydrology

Negligible impact to water resources. Portions of the site should become wetter through the development of the wetland and the swale.

h) historic and archaeological resources

These resources will not be impacted.

i) transportation access

transportation access will not be impacted.

WORKPLAN AND SCHEDULE. (Attachment #3)

Describe below the specific work tasks required to complete your project and a schedule with estimated dates. Assume that project starts August 1, 1991, and end September 30, 1992.

TASK	ESTIMATED DATE
Correspond or meet with local, state, and federal officials to determine or confirm permits required.	June, 1991
Develop a detailed site plan and other information needed for permitting agencies.	June, 1991
Submit necessary permit applications. Building Bureau (City) Office of Transportation (City) Planning Bureau (City)	June, 1991
Develop a project work plan and monitoring program plan incorporating staff and volunteers from Leach Garden.	July, 1991
Receive Metro grant.	July 31, 1991
Prepare specifications.	August, 1991
Accomplish site cleanup.	August, 1991
Begin site work (construct swale).	Spring, 1992
Complete site construction.	November 30, 1992
Complete revegetation of site.	Nov.-Dec., 1992
Implement monitoring program.	Winter, 1992-93
Produce public information on project.	Dec., 1992

Building Permit (const. in floodway)	City of Portland, Bureau of Buildings	August, 1991
Environmental Review Conditional Use (Amend)	City of Portland Bureau of Planning	August, 1991

5. PROJECT BUDGET.

Item	Local Match	Grant Req.	Total
a) Personnel			
Parks Bureau	$1,000		$1,000
(planning, contract execution, hauling debris, delivery of supplies)			
Env. Services	$3,000		$3,000
(planning, site work, catch basin work)			
Leach Garden	$1,500	$ 500	$1,500
(staff coordination, staff site work, landscape contract)			
b) Materials & Supplies			
Plants & seeds		$3,000	$3,000
Public Info.	$1,500		$1,500
Volunteer supplies		$ 250	$ 250
Construction supplies		$ 800	$ 800
(straw, coconut fibre, survey stakes, catch basin materials, etc.)			
c) Fees			
Debris Recycling		$ 100	$ 100
Permits	$ 500		$ 500
d) Professional Svcs.			
Wetland & swale design	$2,000		$2,000
(B.E.S. staff)			

Control device & hardscape design	$1,000		$1,000
(B.E.S. staff)			
e) Volunteer Labor (hours @ $4.75)			
pond/swale excavation (400 hours)	$1,900		$1,900
Monitoring Pgm. (ongoing for 5 yrs.)	$ 250		$ 250
f) Indirect Costs/ Overhead (not grant eligible)			
Parks Bur. support (15% of $1,000)	$ 150		$ 150
Env. Svcs. support (15% of $6,000)	$ 900		$ 900
Leach Garden supp. (10% of $1,500)	$ 150		$ 150
g) Contingency (not grant eligible) 15% of construction budget			
h) Detail all local resources (not grant eligible)			
Planning Bur. staff time dedicated to Leach Garden. site	$ 500		$ 500
TOTAL:	**$14,350**	**$ 4,650**	**$19000**