WHIPPLE CREEK RESTORATION

A GREENSPACES RESTORATION PROJECT

1996-1998

Vancouver School District

Submitted jointly by:

Ray Peterson
Syreece Mclean

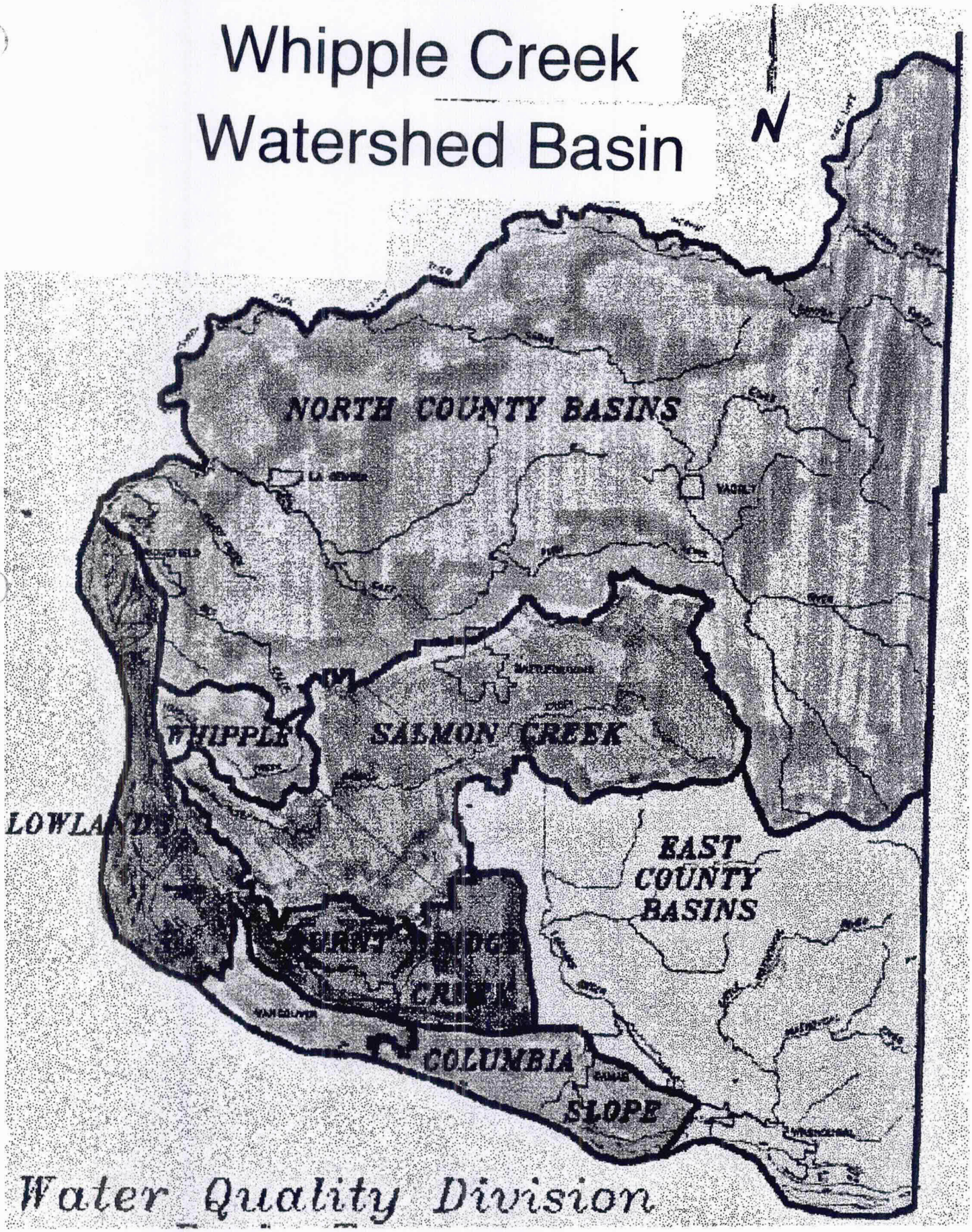
June 30, 1998

Date	Activity	Match
11/11-14/96	students/parents mapping/surveying	24 hrs x 3 x $4.75 = $342
12/9,11,12,13/96	students/teacher water quality testing	
12/14/96	8 adults and 186 students planting firs	4 hrs x 8 x $4.75 = $152
12/18-19/96	students/teacher assess macro's/fish	
9/25/97	students/teacher mark sensitive zones	
11/11-14/97	parent/teacher/students update mapping	24 hrs x 1 x $4.75 = $114
1/7,9/97	2 adults and students improve trail	2 hrs x 2 x $4.75 = $19
1/14,16/97	2 adults and students improve trail	2 hrs x 2 x $4.75 = $19
1/21,22/97	1 adult and students repair bridge	2 hrs x $4.75 = $9.50
2/4/97	1 adult and students install bridges	1 hr x $4.75 = $4.75
2/11,12/97	1 adult and students develop trail	3 hrs x $4.75 = $14.25
2/18,20/97	2 adults and students install deterrants	2 hrs x 2 x $4.75 = $19
2/25,27/97	2 adults and students build steps	2 hrs x 2 x $4.75 = $19
3/4,6/97	2 adults and students build steps	2 hrs x 2 x $4.75 = $19
3/20/97	1 adult and students pick up litter	
4/21-24/97	3 volunteers and students map/survey	24 hrs x 3 x $4.75 = $342
5/5,6,9,12/97	teacher and students test water	
5/20/97	teacher and students plant trees	2 hrs x $4.75 = $9.50
5/27,28/97	teacher and students assess macro's	
1/8,9/98	teacher and students assess macro's	
1/6,7,12,14/98	teacher and students test water	
3/11,12/98	teacher and students plant trees	
3/25,27/98	4 teachers and students plant trees	
4/15,16,17/98	4 teachers and students plant trees	
3/26,27/98	teacher and students plants herbs	
4/22/98	teacher and students pick up litter	Total $1083

1.) Project Area Map

Project Area Map - Clark County

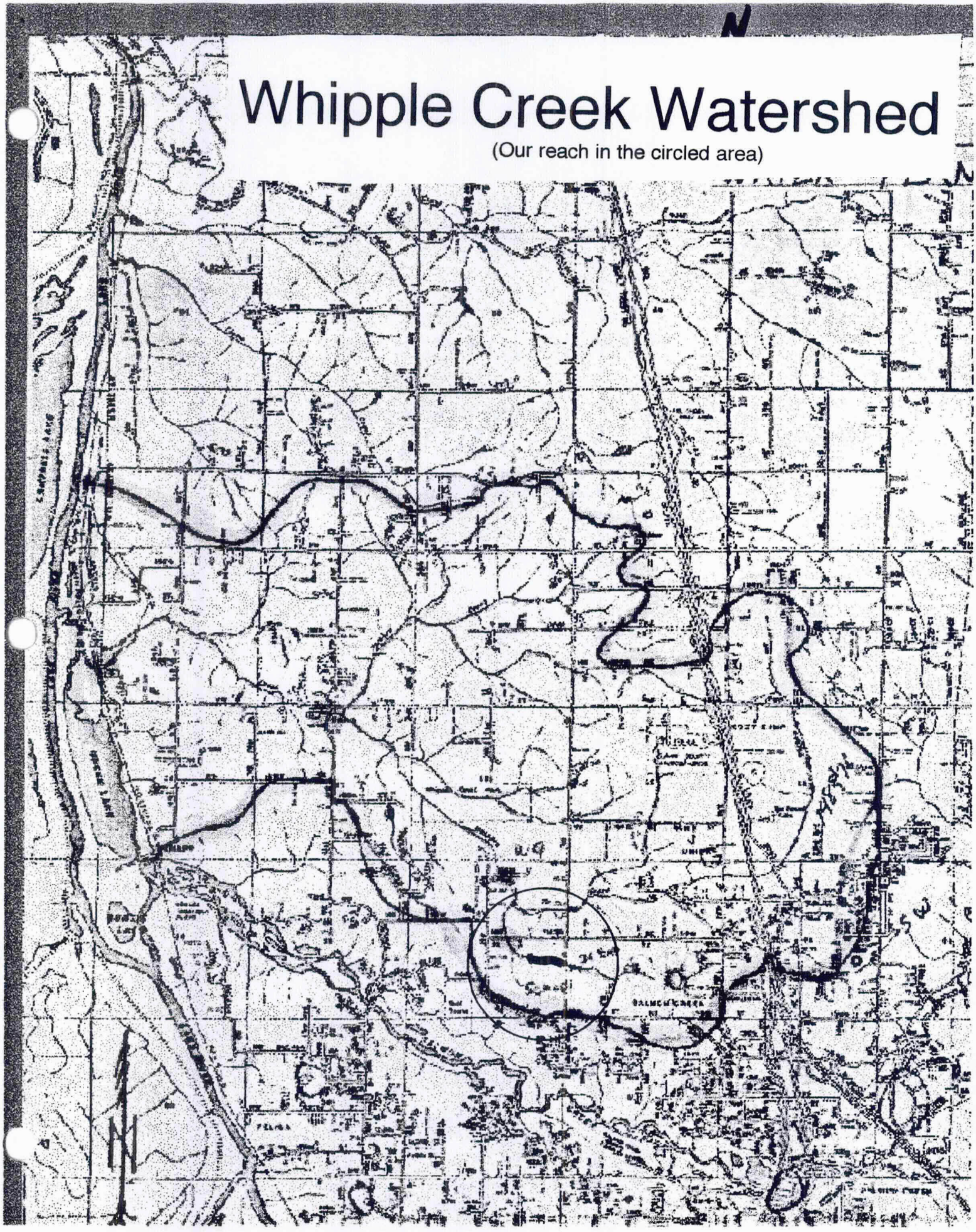
Whipple Creek Watershed Basin

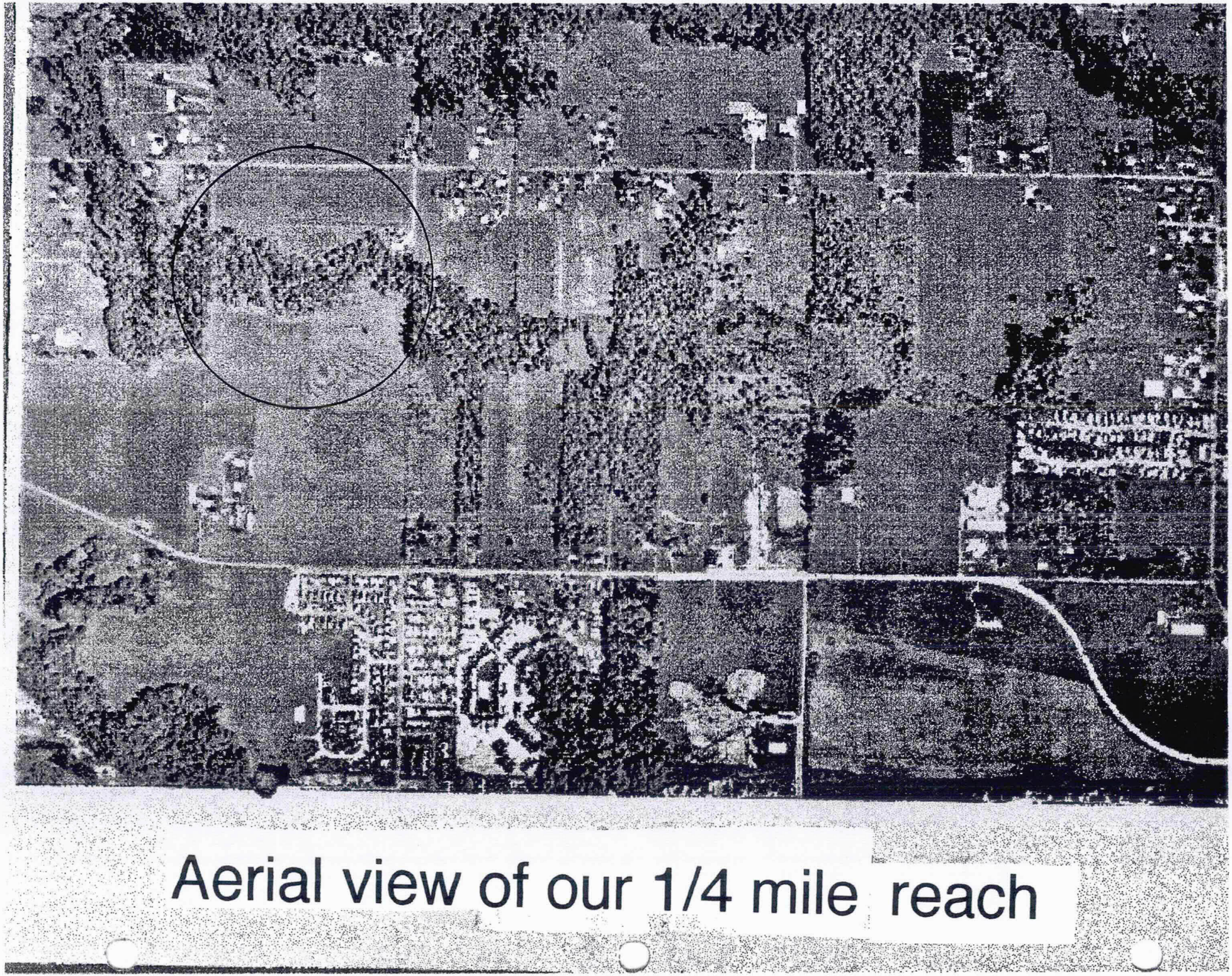


Water Quality Division

Whipple Creek Watershed

(Our reach in the circled area)

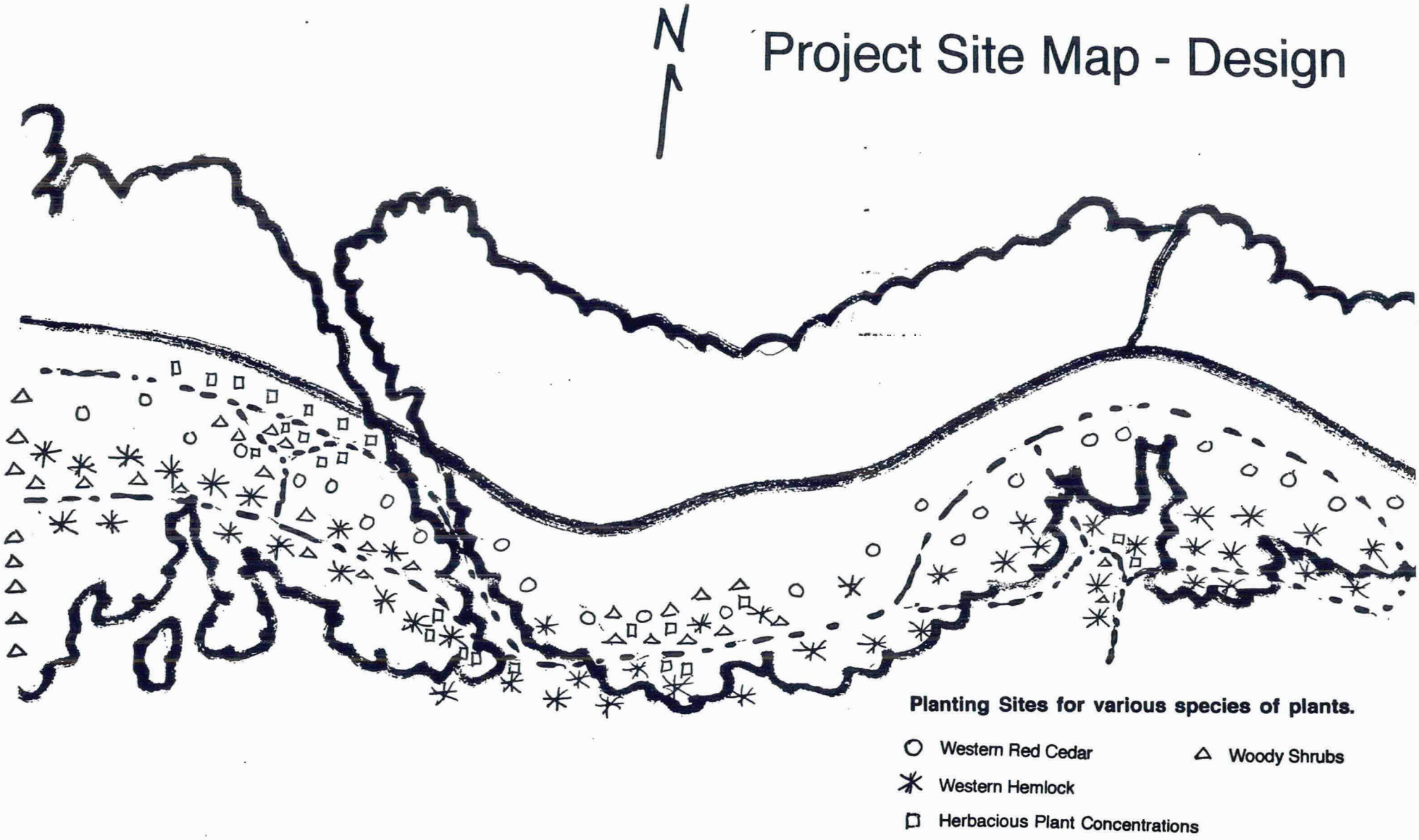




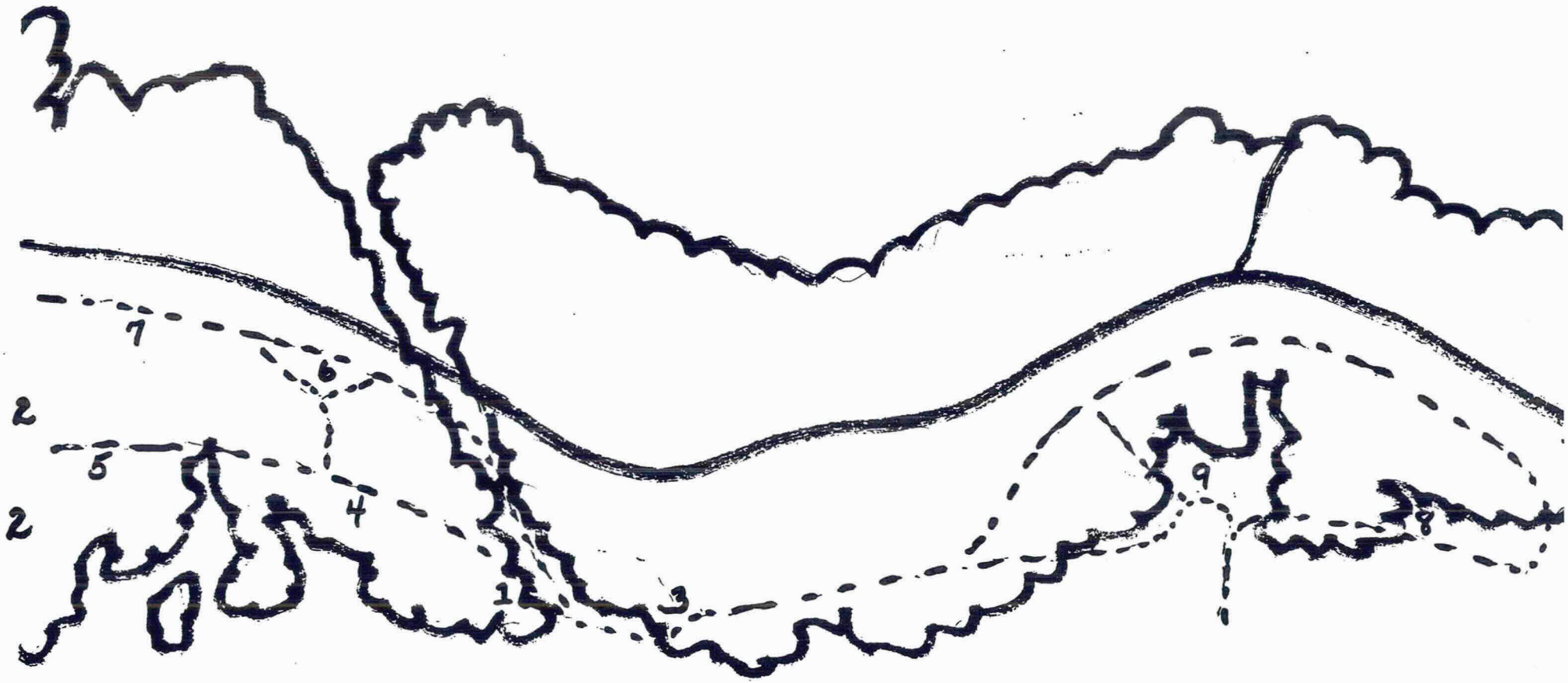
Aerial view of our 1/4 mile reach

2.) Project Site Map

Project Site Map - Design



Project Site Map - Photo Points



3.) Photos and site map with photo points

Photo Record - 1996-1998

Photo Record - Before Planting

8

8

9

9

3

6

9

2

Larger trees were rescued from home for our site

Protection for sensitive areas was fostered by building natural barricades along the trail

6

3

Our teams concentrated on woody plants in this area. Red current was a favorite.

3

Brandon Creek

After

We cover no cover areas with forest duff to foster top soil formation.

Photo Record - During Planting

6

New materials are added to a sensitive area on the creeks riparian zone. Students were careful to not do too much damage to surrounding native plant materials.

6

Monica readies a Western bleeding heart for an area surrounded by water leaf.

Photo Record - After Planting

Newly planted Western Hemlock hidden by surrounding under story plant materials

Red Osier Dogwood

4

Wild Plum

3

Red Current doing well along the upper trail

Hooker's Fairy-bell

Ocean Spray is furishing

6

Western Bleeding Heart

1

Piggy-back doing well on a previously barren slope

4.) Project Description

The Whipple Creek Restoration Project was created to restore the habitat for all wildlife on the South Fork on the Whipple Creek in Clark County, Washington. The team envisioned returning the site to its former natural state. In addition, the project is seen as a way to develop community awareness of and enlist community support for restoration of the local natural habitat.

For Ray Peterson and Margaret Russell, the lead teachers working on the Whipple Creek project, the efforts to restore the creek afforded a unique opportunity to develop real-life science curriculum for middle school and high school students. Student involvement with this curriculum and with hands-on experience and personal investment in the restoration of the creek leads to future adults who are stewards of natural areas.

5.) Goals and Benefits of Project

The goals and associated benefits of the project are as follows:

-restore the habitat for all wildlife on the South Fork of Whipple Creek

-return the South Fork of Whipple Creek to its former natural state

-develop community awareness of and enlist community support for restoration of the local natural habitat

-develop a unique curriculum focused on student as steward and environmentally matched to the Whipple Creek Watershed and Salmon Creek community

6.) Work Tasks and Timelines

Work Tasks and Timelines

1996-97 - This was a period of time when Alki's Environmental Club worked extensively on the trail system. The purpose was to provide activities for the more outdoor oriented student along with maintaining protection for the thin skin of topsoil forming on the riparian zone along the South Fork of Whipple Creek.

December 1996 - Many students and a local Boy Scout Troop worked at establishing a nursery of Douglas Fir on site for future transplanting.

1996-7 School Year - During the Fall and late Spring classes of eighth grade students work in the field surveying the progress of the site, doing water quality exercises, accessing fish populations, and evaluating macroinvertebrate populations. Litter pickup proceeds year round. Lots of garbage is swept downstream during high water.

1997-8 School Year - Continued accessment of our reach site on the South Fork of Whipple Creek by eighth grade students.

Spring 1998 - Several days are devoted to planting coniferous (Western Hemlock) and many other herbacous plant material that is native to the local area. Because of earlier damage by cattle for many years, several plant species had to be reintroduced, such as, piggy back, bleeding hear, Hooker Fairy Bells, snowberry, etc. Litter pickup continues to be enforced.

Spring 1998 - Students cover an area with no cover with forest duff. Piggy back, fringe cup , and water leaf are introduced to the area. All introductions are doing well.

Spring 1998 - Students design and place in the field signs to remind other students to stay on the trail and protect sensitive areas, be careful of plant material that could be easily harmed by careless students and not to enter marsh areas that have populations of skunk cabbage.

Spring 1998 - Students review the street drains in the area. Grates are sprayed to keep harmful chemicals out of the ecosystem along Whipple Creek.

Spring 1998 - The students are introduced to designing techniques that will lead to a trifold pamphlet for depersal within the Whipple Creek Watershed for interested people living here.

Spring 1998 - Students survey the creek so as to keep a lane of water open to migratory fish. Flooding tends to block the flow of water that would make the migration of searun stock available.

7.) Project Budget - local share + Metro Grant

Project Budget

1. Clark County Conservation Service
   - 40 Oregon Ash
   - Red Flowering Current
   - 20 Kousa Dogwood
   - 50 Red Osier Dogwood
   - 50 Blue Elderberry
   - 20 Honeysuckle
   - 50 Mock Orange
   - 20 Ocean Spray
   - 37 Oregon Grape
   - 31 Snowberry
   - 30 Western Red Cedar
   - 300 Western Hemlock

   Total number of plants ordered - 770

   Cost $546.61

2. Robson Botanical Consultants
   - Deer fern
   - Sword Fern
   - Western bleeding heart
   - Hooker's fairy-bell
   - Yellow monkey flower
   - Piggy-back
   - Tall Oregon Grape
   - Red Osier Dogwood
   - Hazelnut
   - Western wahoo
   - Oregon ash
   - Ocean spray
   - Cascara
   - Salmonberry
   - Thimbleberry

   Cost 383.06 ~~$350.00?~~

~~3. Chemical Test Kit Cost ?~~

Metro Grant Field Activities

Description of the activity.

Reinforcing selected areas with herbaceous plant materials so as to add diversity to existing sites

Dates conducted.

March 26 and 27, 1998
12 hrs.

Individuals involved in the activity.

Ray Peterson

372 8th grade students over a 2 day period

Metro Grant Field Activities

Description of the activity.

We planted 300 Western Hemlock in the upper riparian along the South Fork of Whipple Creek.

Dates conducted.

March 11 and 12, 1998
12 hrs.

Individuals involved in the activity.

Ray Petersen

392 8th grade students over a 2 day period

Metro Grant Field Activities

Description of the activity.

Develop a nursery in the field at the west entrance to Whipple Ck. behind Alki Middle School. Four hours were needed to complete the activity from 9AM / PM
800 Douglas Firs were planted.

Dates conducted.

December 14, 1996

4 hrs.

Individuals involved in the activity.

Scout leader of LDS West Stake Boy Scout Troop

15 Boy Scouts

6 adult helpers

Tom McConathy

Ray Peterson

4 students from Alki MS

Metro Grant Field Activities

Description of the activity.

Improve trail conditions at Leach 5 & 6 on Whipple Creek behind Alki M.S.

Dates conducted.

January 7 and 9, 1997
One hour each evening

Individuals involved in the activity.

Ray Peterson

Tom McConathey

16 8th grade students

Metro Grant Field Activities

Description of the activity.

Improve trail conditions ~~on~~ at Reach 9- on Whipple Creek behind Alki MS.

Dates conducted.

January 14 and 16, 1997
One Hr. each evening

Individuals involved in the activity.

Ray Peterson

Tom McConathy

15 8th grade students

Metro Grant Field Activities

Description of the activity.

Retrieve and repair vandalized bridges for controlling siltation on Whipple Creek

Dates conducted.

January 21 and 22, 1997
one hr. each night

Individuals involved in the activity.

Ray Peterson

6 - 8th grade students

Lavi School / Brandon Craft

Before

West - View of Upland View Apartments from Marker

Metro Grant Field Activities

Description of the activity.

Install bridges over new areas of high runoff.

Dates conducted.

Feb. 4, 1997

1 hr.

Individuals involved in the activity.

Ray Peterson

7 8th grade students

Metro Grant Field Activities

Description of the activity.

Develop a new trail to control students taking short cuts ~~in the~~ on steep slopes.

Dates conducted.

Oct 11 and 12, 1997

3 hrs.

Individuals involved in the activity.

Ray Peterson

4 - 8th grade students

Metro Grant Field Activities

Description of the activity.

Install diversionary materials to keep students off of sensitive areas

Dates conducted.

Feb. 18-20, 1997
2 hours

Individuals involved in the activity.

Ray Peterson

Tom McConathy

12 8th grade students

Metro Grant Field Activities

Description of the activity.

Develop steps in steep trail areas to help control slipping during extra wet day.

Dates conducted.

Feb. 25 and 27, 1997
Mar 4 and 6
4 hours

Individuals involved in the activity.

Ray Peterson

Tom McConathy - 2 sessions

9 - 8th grade students

Metro Grant Field Activities

Description of the activity.

Plant 800 Douglas Fir plants

Dates conducted.

Mar 25 and 27
Apr 15, 16, and 17
30 hrs.

Individuals involved in the activity.

Darren Gray 7th Science teacher

Mr. Duncan 7th Science teacher

Ray Peterson

Kathy Kirkland 6th Grade teacher

186 8th grade students

300 7th grade students

30 6th grade students

Metro Grant Field Activities

Description of the activity.

Mapping and surveying Whipple Creek.

Dates conducted.

Nov. 11-14, 1996

24 hrs.

Individuals involved in the activity.

Ray Peterson

Bernice Bachelor

2 other parents

186 Students

Metro Grant Field Activities

Description of the activity.

Mapping and surveying Whipple Creek

Dates conducted.

Apr 21-24, 1997
24 hrs.

Individuals involved in the activity.

Ray Peterson

3 assisting adults

18b 8th grade students

Metro Grant Field Activities

Description of the activity.

Water quality testing

Dates conducted.

Dec. 9, 11, 12, and 13, 1996

24 hrs.

Individuals involved in the activity.

Ray Peterson

18 6th students

Metro Grant Field Activities

Description of the activity.

Water quality testing

Dates conducted.

May 5, 6, 9, and 12, 1997
24 hrs.

Individuals involved in the activity.

Ray Peterson

186th 8th Students

Metro Grant Field Activities

Description of the activity.

Water quality testing

Dates conducted.

January 6, 7, 12, and 14, 1998
24 hrs.

Individuals involved in the activity.

Ray Peterson

186 8th students

Metro Grant Field Activities

Description of the activity.

Mapping and surveying Whipple Creek

Dates conducted.

Nov. 11-14, 1987

24 hrs.

Individuals involved in the activity.

Ray Peterson

Bernie Bachelor

186 8th students

Metro Grant Field Activities

Description of the activity.

Litter pickup

Dates conducted.

Apr 22, 1998

6 hrs.

Individuals involved in the activity.

Ray Peterson

18b 8th Students

Metro Grant Field Activities

Description of the activity.

Litter pickup

Dates conducted.

March 20, 1997
6 hrs.

Individuals involved in the activity.

Ray Peterson

186 8th students

Metro Grant Field Activities

Description of the activity.

Mark with fixed signs all marshy areas, sensitive zones, and reaches for student research

Dates conducted.

Sept. 25, 1997
April 14, 1998
2 hrs.

Individuals involved in the activity.

Ray Peterson

2 - 8th students - TA's

Metro Grant Field Activities

Description of the activity.

Assess macroinvertebrate and fish populations

Dates conducted.

Dec. 18-19, 1996
May 27-28, 1997
Jan. 8-9, 1998
4/2 hours

Individuals involved in the activity.

Ray Peterson

186 8th Students

Metro Grant Field Activities

Description of the activity.

After school tree planting; Douglas Fir.

Dates conducted.

May 20, 1997
2 hours

Individuals involved in the activity.

Ray Peterson

3 - 8th Students

8.) Project Staff -Workers-Volunteers


12 14 '98

Upstream from bridge

12/14/96

Post-project

Dolch Creek
Audubon
After

Project Staff	:	Syreece McLean, Project Manager
		Ray Peterson, Lead Middle School Teacher
		Margaret Russell, Lead High School Teacher
Project Workers (on school time)	:	186 - 8th Grade Students at Alki Middle School
		20 - 10th Grade Students at Skyview High School
		300 - 7th Grade Students at Alki Middle School
		3 other middle school teachers
Project Volunteers (after school times)	:	Ray Peterson - lead teacher
		Scout Leader + 15 Scouts
		Tom McConathy - Local Environmental Activist
		Bernie Bachelor - parent

9.) How Project Relates to the Greenspaces Program

The Whipple Creek Restoration Project relates to the Metro Greenspaces Program in several ways. First and foremost in answering this question is the recognition that Whipple Creek and all of the other surrounding creeks that make up the entire watershed in Clark County are a part of bigger picture - the Columbia River and the land, water, and riparian plants and animals on both sides of the river - Vancouver and the Portland-Metro Area. Ultimately, efforts on Whipple Creek effect the health of the entire natural system.

The Greenspaces Program mirrors our local efforts on Whipple Creek in the many other metro projects of similar nature.

10.) What Worked/What Didn't/Helpful Hints

What Worked / What Didn't / Helpful Hints

What Worked

1. Planting hemlock trees on the riparian zone during the months February/March was very successful. The students were ready for field work after a long layover in the classroom. Since the introduction of the Western Hemlock to the riparian zone and the consequential growth of native species this Spring, one does not notice the tree at this phase of its life. A careful eye finds them growing and doing well in sunny locations, partial shade, and darker areas. Very little mortality has been experienced.

2. Woody plant material has done very well in the sunnier locations.

3. Herbacious plant materials have been successful along the riparian zone.

What Didn't Work

1. In planting some of the plant materials several students were less than careful in helping protect sensitive steep slopes. The student left large open wounds to the topsoil layer. It is obvious how a herd of cattle can ruin the land very quickly.

Helpful Hints

1. It is paramount that the student know exacting what is expected of them. They need to train for the experience or there physical efforts and field procedures may go askew.

2. Success is more apparent with properly equipped students in the field. Eighth graders tend to turn off and on with their listening skills and constant reminders keep them on task in the field.

Monitoring and Maintenance Plan

Monitoring Program

Our eighth grade student population at Alki Middle School will be involved in a physical survey program along the South Fork of Whipple Creek which will include:

1. Surveying of the physical environment twice a year. This includes:
   a. plant populations
   b. bank analysis; vertical and undercut features
   c. litter
   d. wetland locations
   e. sand and gravel in the creek
   f. riffle and pool locations
   g. current changes in the creek
   h. accessment of organic debris
   i. trail conditions in the area along the creek
   j. location of springs
   k. accessment of urban development in the area
   l. accessment of human interventions
   m. wildlife: reptilia, mammalia, ave
   n. creep; pistil butting
   o. hints from the environment that tell of the past
   p. production of maps of individual reach assignments

2. Discharge and velocity calculations - This phase of the program involves measuring the width of the creek, checking its depth, and timing a floating object. The student learns that the right velocity dictates how efficiently a chemical spill is cleared from the water. It also has bearing on how well a specie of fish takes water through its mouth and passes it out the gills.

3. pH - This activity allows the student to observe chemically how many free wandering hydrogen ions are in the water on the creek. It is the presence of hydrogen ions that dictate the acid/base relationship of our area. Salmon and trout occupy and very narrow corridor in the environment and the student check charts to indicate how viable the system is in our backyard.

4. DO Levels - The student uses test kits and charts to determine the percent of dissolved oxygen. A 90% reading indicates that there is enough oxygen in the creek to support a small anadromous salmon or trout for its first year of growth.

5. Fish accessment - We construct fish traps out of 2 liter bottles to determine the species of fish in the South Fork of Whipple Creek. The traps are

Sept '96
Balch

Balch Creek - Anderson
Before