

Note: This plan draft prepared by NW Swan Conservation Assoc. in 2004 was not implemented

Valley View Dairy Trumpeter Swan Habitat and Chimacum Creek Enhancement Practices

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Introduction

The Valley View Dairy is owned and operated by Roger and Sandy Short in Jefferson County, Washington. The mailing address is 1720 Center Road, Chimacum, Washington 98325. The Shorts sold their dairy herd two years ago and transitioned to producing replacement heifers and compost. They pasture a few beef cattle and sell local hay. They are planning on returning to some type of small dairy operation with less than 50 cows within the next year. The Shorts are interested in conserving a portion of their property for conservation and enhancement of trumpeter swan habitat and restoration of Chimacum Creek for salmon. The swan habitat enhancement is associated with the Elwha River Restoration Project. A conservation easement (CE) has been proposed on 36.1 hectares (89.1 acres) of the farm's total of 94 hectares (232 acres). The CE will be held by the Jefferson Land Trust. This plan outlines conservation and enhancement practices within the proposed CE boundary and a 5-year implementation schedule. This document will serve as the management plan referred to in the CE agreement.

The Valley View Dairy is located in the Chimacum Creek watershed that flows into Port Townsend Bay, a part of the Puget Sound basin (Figure 1). In the Chimacum watershed agriculture is the primary land use with pasture, grass hay and silage the most widely produced crops. There is a small amount of organic vegetable farming. The area is primarily rural with several small unincorporated communities along the Quimper Peninsula both inland and along the marine shoreline. Historically, Chimacum Creek meandered through a Sitka spruce (*Picea sitchensis*) dominated forested valley. The valley was logged and the creek channelized for

several miles in the 1920s. In the 1940s the creek was cleaned of aquatic vegetation. A dredging and flood control plan was developed in the 1950s but it is unclear how much of this was implemented.² Riparian vegetation is found only in small fragmented areas where plantings by landowners succeeded.

Planning/Conservation Easement Area Description

The planning area consists of the 89.1 acres that is currently proposed for a conservation easement. The area borders both sides of Chimacum Creek and runs the length of the farm. Figure 2 shows the entire farm boundary, proposed CE area, the existing fields and annual flood zone line. The CE width varies along its length to follow field or water feature lines and to provide for other farm uses while including all of the swan use areas.

Topography is relatively flat along Chimacum Creek and the adjacent floodplain. The creek elevation along the 1 mile length on the farm drops about 3 feet from south to north. There is only a 5 foot elevation change in the next 2 miles of the creek.² The low gradient creates a drainage issue on the farm with flooding during periods of moderate to heavy rain during the winter and early spring.³

Soils types mapped on the farm are shown in Figure 3 and soil characteristics are given in Table 2. The primary soil type is Semiahmoo muck (map symbol Se). It is a very poorly drained soil that is prone to seasonal flooding thus making it suitable for shallow water areas, and providing wetland wildlife habitat.³ The entire valley floor is deep peat muck. The peat at the farm road bridge goes down 17.4 meters (57 feet) to solid soil.^{3,5}

The planning area includes a variety of grassland fields used for silage, hay, or pasture for dairy heifers and beef cattle. There is a narrow, linear managed vegetation area along the

creek that is dominated by reed canary grass. Most of the CE area is subject to flooding in the winter months, often with standing water for 2 to 3 weeks in December or January.³ The area is usually flooded from February through late April.

All fields within the planning area are currently being managed as grassland fields planted with a mix of tall fescue (*Festuca arundinacea*) and timothy (*Phleu'fl pratense*). Due to the wet nature of most of the fields along the creek, native mannagrass (*Glyceria* sp.) often out competes any fescue or timothy plantings. Rather than try to eliminate it, this grass has been incorporated into the regular pasture and haying management practices on the farm. Mannagrass is a preferred food by trumpeter swans. A wide variety of fish and wildlife species use the habitats available on the Valley View Farm. Wildlife species observed during site visits to the farm are shown in Table 1.

Chimacum Creek is a major feature of the planning area. It is a perennial stream that flows south to north bisecting the farm and CE area. Previous channelization created low, narrow side cast mounds about 0.1 to 0.15 meters (4 to 6 inches) high on both banks.² Reed canary grass (*Phalaris arundinacea*) dominates both banks of the creek forming mats that spread into the creek. Aquatic vegetation in the creek consists primarily of reed canary grass and elodea (*Elodea Canadensis*) with small duck weed (*Lemna minor*) and other aquatics found in lesser amounts. A narrow row of alder (*Alnus rubra*) and black cottonwood (*Populus balsamifera*) are scattered along the creek's east bank on the south most 426.7 meters (1,400 feet) of the farm. Because the creek runs north south and the trees are deciduous, shading value from these trees is limited.

Aquatic vegetation over growth impedes drainage of agricultural land and adversely affects water quality (dissolved oxygen levels) in the low gradient reaches of Chimacum Creek. The main species causing the problem are reed canary grass and elodea. Due to the low gradient,

the creek floods its banks for about 3 months each year from February through April. Sometimes it floods for 2 to 3 weeks in December or January depending on rainfall events.² During late summer, aquatic vegetation growth is especially dense due to warm water conditions from lack of shade. Elodea is an underwater perennial which dies out in the winter but grows quickly in the spring and summer months when it causes drainage problems. The clogged creek causes water to back up in the fields, especially in the north half of the farm. If this late summer flooding is not relieved mowing of the grasslands or pasturing cattle is not possible. The result is a loss of hay for feed and the reduced value of the area for swan habitat in the fall when the swans first arrive. Mowing the grass fields in late summer creates succulent green shoots for the swans in late fall.

Currently coho salmon come up Chimacum Creek passing through the Valley View Dairy. However, during summer months the dissolved oxygen levels have been very low due to warm water and dense aquatic vegetation growth.⁶ The result has been reduced use of the creek by salmon. Both elodea and reed canary grass need sun to prosper, restoration of riparian vegetation will shade the creek and help control them.

Goals And Objectives

The following are goals of the Valley View Dairy:

1. Maintain and enhance existing trumpeter swan habitat.
2. Enhance creek for salmon and other fish habitat through riparian vegetation plantings and aquatic vegetation control to increase dissolved oxygen levels and reduce water temperature for salmon and other aquatic animals.
3. Eliminate summer flooding of Chimacum Creek through aquatic vegetation control.

The Shorts are interested in continuing to support trumpeter swan and other fish and wildlife use of their farm. They enjoy the swans and understand the importance of their property to the overall health of the wintering trumpeter swan population in the region. The land within the CE is chronically wet and often difficult to farm. The primary objective of the conservation practices recommended in this plan are to maintain and enhance the swan use on the farm.

A second priority is riparian restoration on Chirnacum Creek to reduce water temperature and restore water quality by increasing dissolved oxygen levels for fish. This will also help control the aquatic vegetation problem discussed later. The Shorts are interested in working with local, state and federal agencies and NGOs to obtain a grant or other funding to restore the riparian vegetation along Chimacum Creek. Their farm was earmarked for riparian restoration in 1996 in the Chimacum Watershed Coho Salmon Restoration Assessment¹. No progress has been made since then due to lack of funding and other obstacles.

Controlling the aquatic vegetation in Chimacum Creek has been a long term problem, well beyond the boundaries of the Valley View Dairy. Controlling aquatic vegetation is critical to grass field management in the swan use areas. A considerable amount of time, effort and money has been spent by Mr. Short and various agencies to find a solution that would work to reduce the summer flooding on the farm and downstream. A description of the present mechanical method is given under Aquatic Vegetation Management and Control. When this equipment was used this fall, the dissolved oxygen level in creek went from about 3-4 to over 10, a significant improvement.²

Conservation and Habitat Enhancement

The proposed CE encompasses most of the floodplain zone on the farm, all of the swan use areas and the entire length of Chimacum Creek except where the farm road crosses the creek. The proposed CE is approximately 36.1 hectares (89.1 acres). Conservation and habitat enhancement include managing grass fields to maintain and enhance swan use, aquatic vegetation control in the creek through three methods: shade, mechanical and herbicide use. Riparian restoration includes planting a tree and shrub buffer along the creek's entire length through the farm. All of these activities are interrelated because grass field management to enhance swan use is dependent on preventing summer flooding.

Once the CE is official, the boundary needs to be marked. It is recommended that durable plastic stakes be placed in strategic locations to allow the boundary to be clearly marked, yet the stakes will be out of the path of farm equipment.

Managing grass fields

Current grass field management practices have resulted in excellent forage for swans in late fall through the winter. Maintaining and enhancing these grass areas is dependent on Mr. Short being able to mow or pasture these areas. The native manna grass appears to thrive in the wet soils of the floodplain. The following recommendations are based on the assumption that field conditions are dry enough to permit access for farming practices. The desire is to provide a green regrowth phase of manna grass for swans by late fall.

Grass field management is dependent on mowing and, to a lesser extent, pasturing cattle. The current management strategy is recommended to continue as currently practiced by Mr. Short as follows:

- I. Mowing is done 2 times per year, in June and again in late August or early September if cattle are pastured. When cattle are not pastured, cutting needs to be done 3 times per year to provide optimal grass feed for swans by late fall. Mowing is also weed control.
2. Harrowing (dragging) the field for dispersing cow pies is done "whenever you can" according to Mr. Short. He also harrows at the end of the season, soil conditions permitting. This provides the recycling of nutrients back into the soil for fertilizer and to protect water quality.
3. Aerating the field to get air to roots is especially important in these peat muck soils. This is done after one of the summer cuttings and is weather dependant. It is not necessarily done every year.
4. Reseeding of the fields with timothy and tall fescue should be done as needed, but likely not more than once every 10 years. Mannagrass reseeding is not planned as it appears to self seed and be productive. Costs for reseeding have not been included in this plan.

Aquatic Vegetation Management and Control

Controlling aquatic vegetation is critical for accomplishing the goals of this conservation plan.² Components of an aquatic vegetation management plan include shade, mechanical control and herbicides. Shading will be addressed under the Riparian Vegetation Restoration section. It is recommended by Washington Department of Fish and Wildlife (WDFW) and Washington Department of Ecology (DOE) that a formal Vegetation Management Plan (VMP) be developed.⁷ Guidelines and assistance for preparing a VMP are available through DOE, WDFW and the local Conservation District.^{7,s,9} Maintenance of existing ditches will be allowed under the CE and management practices for this can be included in the VMP.

1. Mechanical - The use of mechanical devices over the years has proven effective, to some degree, in keeping the aquatic vegetation under control. An ongoing problem has been the permitting process with state agencies to allow for the use of mechanical devices. After many years of delay and debate, it appears that a potential solution to the problem has been found. The following is a description of what was done in September 2004.

Mr. Short developed a large rake attachment for his excavator. The bucket and thumb of the excavator hold one end of the rake and it is dragged through the water while the excavator is on one side of the creek. The excavator arm can reach out up to 13.7 meters.(45 feet) allowing the machinery to be well back from the stream bank. It can be worked from either bank. The vegetation is pulled up onto the bank and left. This is an efficient and cost effective method to remove aquatic vegetation from a large section of the stream. This year a section about 3 miles long was done by one person in about 20 hours.³

This rake method was permitted by WDFW under their "Aquatic Plants and Fish" pamphlet that allows for mechanical or hand control of aquatic noxious weeds under certain conditions without a more formal permit process.¹⁰ WDFW allows the landowner to notify the agency that they have read the pamphlet, the person doing the work must keep a copy of an original pamphlet on them during the work, and let WDFW know what method of control they will be using.

It is recommended that the rake method be done at least once every 3 years or every 2 years if conditions need it. Mechanical spot treatment can be done more frequently to keep the problem under control and reduce the need for herbicides. It is also recommended that a Memorandum of Agreement or Understanding be completed between the Shorts and WDFW

(DOE if needed) that will allow for the mechanical rake to continue being used without having additional and unnecessary delays in getting the work done on a timely basis.

2. Herbicides - The use of chemicals should be minimized because it is difficult to use herbicides to control submerged aquatic plants in fish bearing streams. It is a tool that can be used to control vegetation such as reed canary grass in areas where mechanical control is not appropriate and as a spot treatment to keep problem areas that develop under control between mechanical treatments. Spot spraying can help prevent the need for more massive mechanical or chemical treatments. An herbicide that is approved for aquatic use should be used.

Riparian Vegetation Restoration

Planting a riparian buffer along both sides of the creek is recommended. The buffer is planned to be 3 to 4.6 meters (10 to 15 feet) wide at the most on each side of the creek. Soil and moisture conditions prevent tree establishment beyond this width. The narrow buffer will accomplish aquatic vegetation control while allowing current or increased swan use of adjacent fields.

To establish the riparian area the existing reed canary grass will need to be controlled and the site prepared for planting. To maintain bank stability and minimize erosion site preparation will be limited to light herbicide spraying of reed canary grass and manual scarification of planting sites. Following site preparation the area will be planted with shrubs and trees using a plan that will allow for excavator rake access to the creek even after the plru.J.tS mature.³

The preferred plan is to plant trees on the creek's east side and shrubs on the west side north of the bridge. South of the bridge plant shrubs on the eastside and trees on the west except the south most 1,400 feet where established trees are present on the east side. Planted trees and shrubs may be mulched to help control reed canary grass.

Timetable For Implementation

A schedule for completion of the activities is given in Table 4. It is anticipated that the conservation easement will be finalized between JLT and the Shorts by January 15, 2005.

Costs and Potential Assistance

The cost to maintain and enhance the swan use areas and riparian vegetation restoration activities within the CE is approximately \$23,600. Table 5 gives the costs to implement the riparian enhancement and restoration portion of this plan. The dollars spent for acquisition of the CE qualify to be used as matching funds for either state or federal assistance or grant programs.

If the landowner decides to implement the riparian vegetation restoration work there are several funding sources that could be considered. Since the Chimacum Creek is a salmon bearing stream it is eligible for funding under the Washington State Landowner Incentive Program (LIP). The project may also qualify for funds by the WHIP program through NRCS. Other funding resources may be available through salmon enhancement programs or a combination of programs with agency and NGOs working together..

Special Considerations for Plan Review

The conservation plan will be reviewed at least once every five years. This plan is referenced in the CE and any review process must include The Trumpeter Swan Society(TTSS) and Jefferson Land Trust. If TTSS is no longer available in the region, the Jefferson Conservation District and Audubon Washington will assist in the review process. This plan also allows for normal maintenance practices of existing ditches.

Acknowledgements

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9. Saldi-Caromile, K., Bates, K., Skidmore, P., Barenti, J., and Pineo, D. 2004. *Stream Habitat Restoration Guidelines: Final Draft*. Co-published by the Washington Departments of Fish and Wildlife and Ecology and the U.S. Fish and Wildlife Service. Olympia, Washington.
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Table 1. Wildlife observed during site visits to Valley View Dairy

Common Name	Scientific Name
Trumpeter swan	<i>Cygnus buccinator</i>
Canada goose	<i>Branta Canadensis</i>
Wood duck	<i>Aix sponsa</i>
Mallard	<i>Anas platyrhynchos</i>
American wigeon	<i>Anas americana</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
California quail	<i>Callipepla californica</i>
Great blue heron	<i>Ardea herodias</i>
Turkey vulture	<i>Cathartes aura</i>
Killdeer	<i>Charadrius vociferous</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Mew Gull	<i>Larus canus</i>
Rock pigeon	<i>Columba livia</i>
Belted kingfisher	<i>Ceryle alcyon</i>
European starling	<i>Sturnus vulgaris</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Mammals	
Coyote	<i>Canis latrans</i>
Northern raccoon	<i>Procyon lotor</i>
Roosevelt elk	<i>Cervus elaphus roosevelti</i>
Fish	
Coho salmon	<i>Oncorhynchus kisutch</i>
Threespine stickleback	<i>Gasterosteus aculeatus</i>

a Observed within the conservation easement area

Table 2. Soil types and drainage characteristics that are mapped on the Valley View Farm conservation easement area.⁴

Soil Map Symbol	Soil Name	Drainage	
Eve	Everett gravelly sandy loam	somewhat excessively drained	permeability rapid
Se	Semiahmoo muck nearly level	very poorly drained	permeability moderate
So	Snohomish silty clay loam, nearly level	poorly drained	permeability slow

Table 3. Plant material to be used for riparian restoration along Chimacum Creek

Trees	
Sitka spruce	<i>Picea sitchensis</i>
shore pine	<i>Pinus contorta</i>
Shrubs	
Pacific nine bark	<i>Physocarpus capitatus</i>
black twin berry	<i>Loricera involucrata</i>
red osier dogwood	<i>Cornus sericea</i> ssp. <i>occidentalis</i>
spirea	<i>Spiraea douglasii</i>
Oregon ash	<i>Fraxinus latifolia</i>

Table 4. Five year schedule to implement restoration and conservation activities on the Valley View Dairy conservation easement.

Schedule of Activities

Year 1 (2005)

- Prepare and submit WHIP or LIP application
- Negotiate MOU with WDFW regarding aquatic vegetation control
- Grass field mowing and management

Year2

- Assume WHIP or LIP application approved
- Riparian Vegetation Restoration
 - Prepare site
 - Plant riparian trees and shrubs
- Aquatic Vegetation Control
 - Rake creek of aquatic vegetation if needed
 - Spot spray herbicide if needed
- Grass field mowing and management

Year3

- Monitor riparian area for plant survival
- Monitor all areas for weeds
- Aquatic Vegetation Control
 - Rake creek of aquatic vegetation if needed and not done in previous year.
- Grass field mowing and management

Year4

- Monitor riparian area for plant survival
- Monitor all areas for weeds
- Grass field mowing and management
- Aquatic Vegetation Control
 - Rake creek of aquatic vegetation if needed
 - Spot spray herbicide if needed

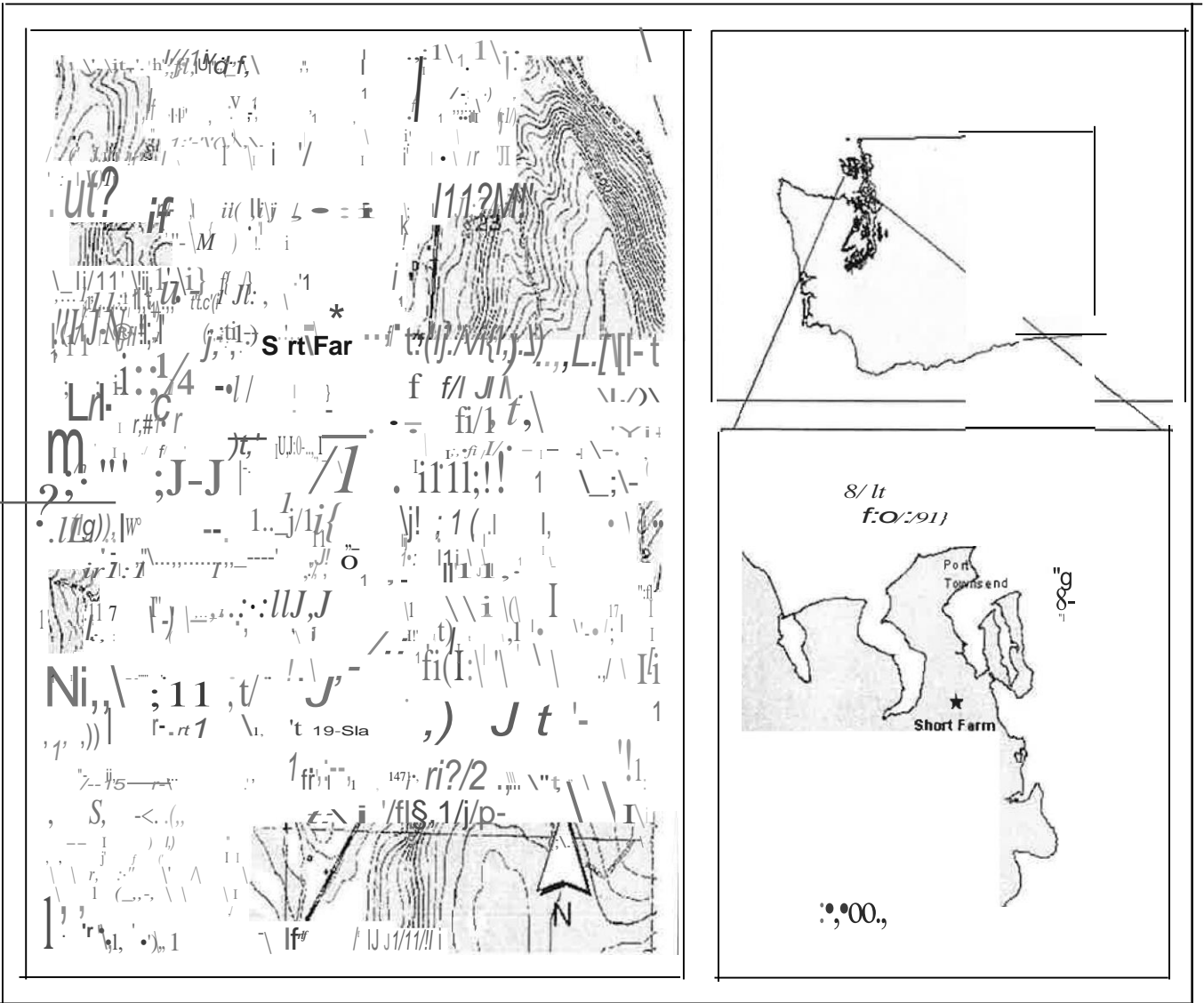
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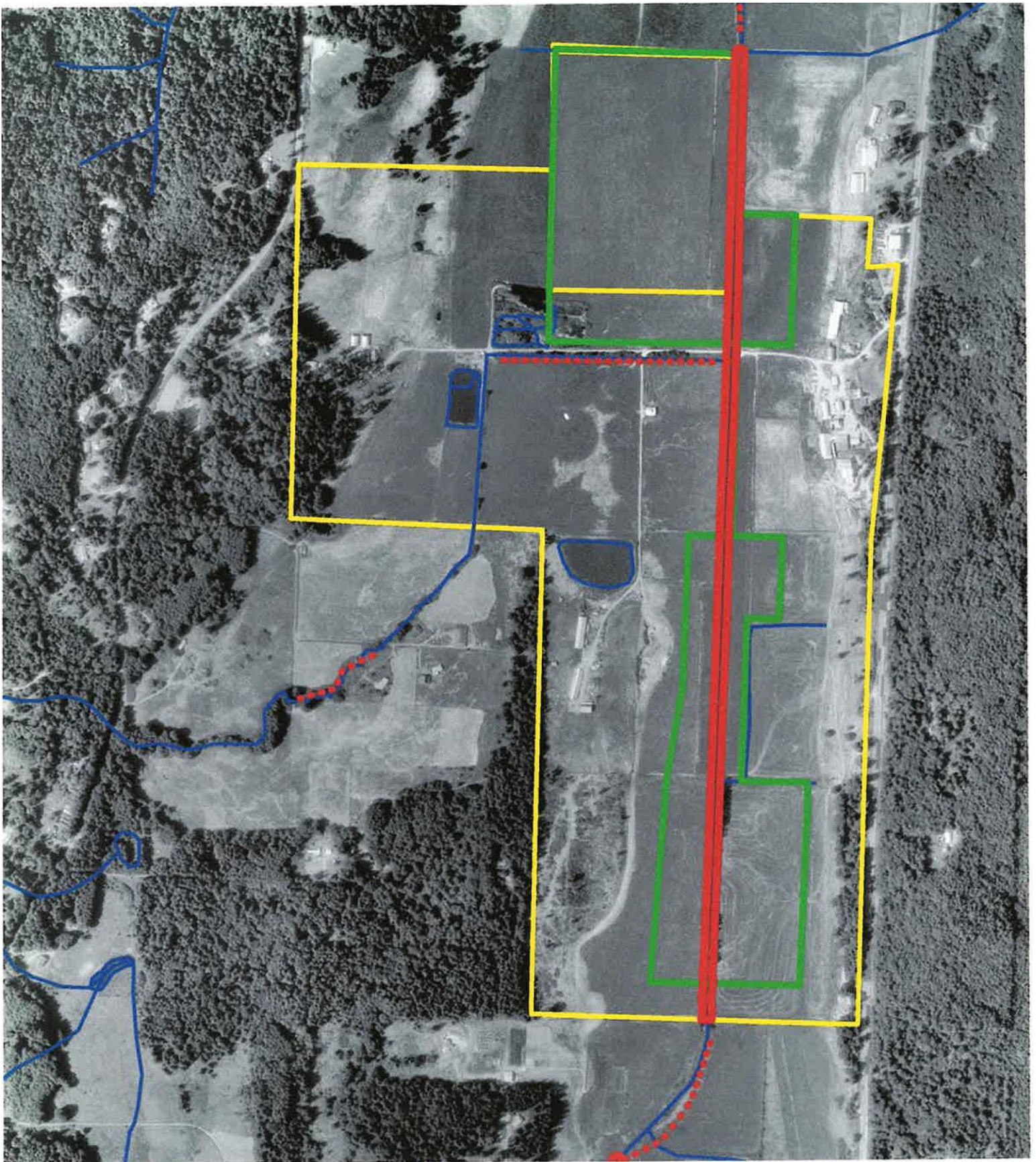
- Monitor riparian area for plant survival
- Monitor all areas for weeds
- Aquatic Vegetation Control - Spot spray herbicide if needed
- Grass field mowing and management

Table 5. Approximate costs for aquatic vegetation control and to complete riparian restoration on Chimacum Creek. Establishment of trees and shrubs includes costs for materials and labor.





Practice	<u>Quantity</u>	Unit Cost	Total Cost (\$)
Conservation Easement Boundary Markers			
Plastic flexible posts	30/posts	\$14/post	420.00
installation of posts (10 hours/\$15/hour)			150.00
Aquatic Vegetation Control (mechanical)			
excavator raking of creek (2 times in 5 years, 20 hours/\$100/hour)		\$2,000/year	4,000.00
Aquatic Vegetation Control (herbicide)			
weed control - spot treatment, light		\$100/year	500.00
Riparian Vegetation Restoration			
tree and shrub establishment. 3 rows, 4 foot spacing in row for 20 foot wide buffer	2,400 plants	\$3/plant	7,200.00
site preparation			2,000.00
<u>maintenance/year (minimum time)</u>	4 years	\$3,600/year	14,400.00
Total			28,670.00

Figure 1. The Valley View Dairy is located in western Washington in Jefferson County, in the Chimacum Creek watershed of Puget Sound.





Short Riparian Easement Project
1720 Center Rd.
Chimacum WA 98325
S23/26, T29N, R1W

-  Recent Riparian Plantings
4.3 Ac. Riparian Planting
-  Swan Esmnt. 75.5 Ac.
-  L51 Streams/ditches/ponds
-  Short property

