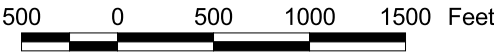


# Reach CL01

## 1998 Aerial Photo Map

### Legend

- CL00 - Project Reach
- Reach Divider
- Stream Centerline 2002



Data Sources: Washington County (1998  
orthophoto base)  
Washington County (2002)  
Metro (RLIS Lite 2002)  
SWCD (2003)

March 2003







## Reach CL01

### Existing Conditions

*Reach CL01 begins at the crossing of Soda Springs Road and Clear Creek and extends for approximately 7,000 feet to the confluence with Gales Creek.*

Channel Habitat Type: MH (Moderate Gradient, Headwater Channel) to LM (Low Gradient, Moderately Confined)

Informal Field Survey completed on 12/9/02. Low flow conditions existed at the time of the survey.

Adjacent Land Use: Private Industrial Forest, Rural Residential and City of Forest Grove Municipal Water Supply

### Characteristics:

- *Channel Conditions:* The channel flows within a fairly narrow valley for a majority of the reach. It appears to have a fairly narrow floodplain. It is somewhat constrained in the mid to lower portions by Soda Springs Road. The gradient of the stream within the reach varies from about 2 percent to 1.3 percent.
- *Riparian Conditions:* Excellent riparian conditions, with good shading and numerous evergreens along the riparian corridor. The recruitment potential for woody debris is good.
- *Water Quality:* The DEQ TMDL report presents data for the summer 1999. The 7-day running average max temperature = 63.3°F.
- *Water Quantity:* Table 11 presents the following permitted diversions along the reach.

Table 4-11: Reach CL01

Permit Number	Use	Rate	Notes
12035	IR	.04	No field verification of screening
11294	D	.02	No field verification of screening
8446	FI	3.0	No field verification of screening
29271	IR	.01	No field verification of screening
13944	MU	1.0	No field verification of screening

- *Habitat Access:* There is a water supply line that crosses the stream channel about 15 feet downstream of the Soda Springs Road bridge that crosses over Clear Creek. It appears that it has been abandoned, since it is fully exposed to stream flow. It appears that it may be an impediment to juvenile fish passage. Upstream of the reach, within the City of Forest Grove water supply basin, the City's diversion structure on the Clear Creek fork is an existing fish passage barrier. The City is currently in the process of hiring a consultant/contractor to install fish passage at this location. There is another fish barrier at a large debris jam, approximately .8 miles upstream of the Forest Grove diversion.

- *Habitat Elements:* No formal habitat survey was completed for Clear Creek. However, in 1999, ODFW identified Clear Creek as having adequate steelhead habitat from its confluence with Gales Creek, up to the diversion of municipal flows by the City of Forest Grove. A short field review of the channel up to the Forest Grove watershed boundaries revealed that the channel has predominately riffle/pool habitat, but had some step/pool habitat in the steeper sections. Visual observations indicate that the LWD volume is good in the lower portions of the Creek (below Soda Springs Road). Studies completed for the Forest Grove Watershed Stewardship Management Plan indicate that LWD volume in the upper reaches is excellent.

Degree of Impairment Score = 4.1

#### Limiting Factors

- Habitat Access

#### Target Functions

- Fish Barriers – Evaluate potential fish barrier to determine if it is a barrier during all of the salmonids life cycle.

#### Recommended Actions

1. Work with the City of Forest Grove to determine whether the water pipeline downstream of the Soda Springs Road Bridge is still in use. If it is not being used anymore, help to facilitate its removal.



**Photo CL01-1**

**Looking from Soda Springs Road Bridge downstream on Clear Creek. A water supply line is shown exposed in the bed of the stream channel. The line may cause a passage barrier during certain flow conditions. Results from a preliminary investigation indicate the line has been abandoned.**

2. Include landowners that are close to the confluence of Clear Creek and Gales Creek in discussions that concern reconnection of the floodplain for Reach GL01.
3. Work with property owners near the creek to educate them about programs that promote stream stewardship and that are available to agricultural operations and rural homeowners through state and federal grants.

## 4-4 Projects for Consideration

Nine projects are presented in this section. These projects have been selected for consideration because they provide a wide range project types throughout the priority area. This list is a menu of projects that could be initiated to begin the process of enhancing winter steelhead trout habitat conditions in lower Gales Creek. Note, that this is just a sample of projects, and the community within the project area is encouraged to work with the Council on the development and implementation of other projects ideas as well. An evaluation of the stability of Gales Creek within a watershed wide context should be completed prior to the design of any in-stream projects. It is important to develop an understanding of how natural and human induced disturbances that have occurred within the watershed are currently affecting the creek, and how they might affect the success of the proposed projects.

An order of magnitude<sup>1</sup> construction cost estimate is included with each project description. These cost estimates are based off the cost information that is presented in Table 3-4. Engineering, permit related costs and maintenance costs are not included in these estimates.

### Project 1

Project 1 is located in Gales Creek Reach GL02 (See Figure 4-4). This project provides opportunities to increase the in-stream complexity of the channel through the placement of LWD. This is an area where there is an interest in the removal a short (approximately 50 feet) section of riprap bank to place log vanes or some other form of wood debris that would help to form a scour pool. The exact location for this project would be determined after discussions with the landowner and evaluation by a geomorphologist during the project design phase.

*Order of Magnitude Construction Cost Estimate: \$15,000*

### Project 2

Project 2 is located within Reaches GL03 – GL09. This project involves working with multiple landowners to secure conservation easements for about 50 acres of large riparian areas along the left and right banks. These are high value resources and should at least be maintained and perhaps enhanced.

*Order of Magnitude Construction Cost Estimate: \$185,000*

### Project 3

Project 3 is located in Reach GL05. This project provides opportunities to increase in-stream complexity of the channel through the placement of LWD. This work should be completed all along the reach so that small pools and riffles form and provide habitat diversity. The wood will have to be well anchored due to the

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<sup>1</sup> An order of magnitude cost estimate is an approximate estimate made without detailed data. The range of accuracy of these estimates is –25% to + 75%.

confined nature of the channel and the related high flow velocities. Specific location for structures and methods to anchor the wood will be determined during the project design phase.

*Order of Magnitude Construction Cost Estimate: \$30,000*



**Looking upstream (north) from the Roderick Road Bridge. The bed has been scoured down to cemented sandstone in most of the reach. Also, the channel lacks LWD. Intact riparian forest areas exist along both banks.**

## Project 4

Project 4 is located in Reach GL06. This project proposes to work with Washington County to determine the status of the conservation easement for the significant riparian area along the left bank. After the status of the easement is confirmed, develop an agreement with the County to either terrace back the left bank to enhance the floodplain or create a backwater channel in order to provide refuge for fish during high flow conditions. Existing riparian vegetation will be protected as much as possible and any impacted banks will be revegetated with native trees that will provide shade for the creek.



**Looking upstream (north) in the vicinity of the property owned by Washington County. This photo shows a glide with deciduous trees along the stream channel.**

During the same project, there is an opportunity to increase the in-stream complexity of the channel through the placement of LWD. Wood in the stream could be used to back water up onto the floodplain, or into a backwater channel. Specific activities will be determined during the project design phase.

*Order of Magnitude Construction Cost Estimate: \$105,000*

## Project 5

Project 5 is located in Reach GL08. This project provides opportunities to work with a landowner to increase sinuosity of the channel along the left bank, upstream of the meander bend. This work would be completed to help reduce the energy being imparted on the outside bend, along the left bank.



**Looking downstream (south) along Gales Creek. Bank erosion is evident on the outside bank. The height of the eroding bank is approximately 10 feet.**

Increasing the sinuosity would be beneficial by reducing flow velocities and forcing the channel to change directions, thus losing energy. There is a concern that additional erosion at the meander bend could cause the channel to short circuit the bend and straighten, thereby causing an increase in channel slope. This would potentially cause further instability of the channel. The project would be designed to reduce the potential of this occurring. Specific activities will be determined during the project design phase.

*Order of Magnitude Construction Cost Estimate: \$180,000*

## Project 6

The Project 6 priority area is located in Reach GL09. This project entails working with the landowners to stop people from illegally driving in the stream. The main access point is located near the downstream end of the reach along the right bank and the driving extends to the middle of the reach. Either install a gate with lock if the landowner desires access to the edge of the creek, or place large boulders at the access point to prevent people from illegally accessing this area. Driving in the creek bed has adversely impacted the creek by causing the channel to widen, which has led to shallow summer flow depths.





**Looking upstream (northeast) along Gales Creek. The channel substrate and riparian vegetation in this reach have been impacted by vehicular traffic as shown.**

After the illegal access has been stopped, a project to increase the in-stream complexity of the channel through the placement of LWD would be constructed. This work should initially concentrate near the middle of the reach near the upstream end of where the illegal access occurred. The work would consist of creating areas with large wood and deep pools that fish can utilize for refuge from high water temperatures. Specific activities will be determined during the project design phase.

*Order of Magnitude Construction Cost Estimate: \$35,000*

## **Project 7**

The Project 7 priority area is located in Reach GL10. This project involves working with landowners along the right bank to enhance and restore the riparian zone. This involves the removal of non-native species (mainly Himalayan blackberry) and planting of native vegetation.

*Order of Magnitude Construction Cost Estimate: \$35,000*



**Looking downstream (south) along Gales creek. The stream bank is covered with non-native species such as Himalayan blackberry and reed canarygrass.**

## **Project 8**

The Project 8 priority area is located in Roderick Creek, Reach RL02. This project involves working with the landowner along the left and right banks to enhance and restore the riparian zone. There is no existing riparian zone where the channel runs through the agricultural field. In this area, non-native vegetation would



be cleared from a 50-foot wide swath on either side of the creek. It would initially be planted with an erosion control mixture and then planted with native shrubs and trees.



**Looking upstream (northwest) along Roderick Creek. A small sluice gate structure on the lower section of the creek may be a passage barrier. The reach lacks a sufficient cover of trees and shrubs to shade the channel.**

In addition, work will be completed with ODFW to evaluate whether there truly is winter steelhead trout habitat upstream of the culvert that runs under the road and upstream of the sluice gate in the channel. If there is valuable fish habitat upstream of the culvert and the sluice gate and they are determined to be barriers to passage, there may be an opportunity to work with the landowner to mitigate the effects.

*Order of Magnitude Construction Cost Estimate: \$20,000*

### **Project 9**

The Project 9 priority area is located in Reach CL01. This project will involve working with the City of Forest Grove to determine whether the water pipeline downstream of the Soda Springs Road Bridge is still in use. This pipeline forms a potential barrier to juvenile passage. If it is not being used anymore, the project will help to facilitate its removal.

*Order of Magnitude Construction Cost Estimate: \$1,000*

