

Darrington Shoreline Inventory report

Task 2: Shoreline Inventory
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1. EXECUTIVE SUMMARY

This shoreline inventory document provides a record of the natural and built conditions along the Sauk River in Darrington, Washington, for the purpose supporting the development of the Darrington Shoreline Master Program. The Shoreline Master Program is a planning and regulatory document that has authority over uses within the shoreline area.

Darrington is a well established, yet small town with modest growth that borders the western bank of the Sauk River in the Cascade Foothills of northeast Snohomish County. The Hampton Lumber Mill is the main industry in the town and the only established urban use along the Sauk River in Darrington. Schools, a US Forest Service Ranger Station, a municipal airport and various other commercial, residential and public uses are also found in Darrington. None of these other uses are located adjacent to the Sauk River. The Sauk Prairie Road Bridge provides the sole crossing of the Sauk River in the town's vicinity.

The majority of the Sauk River shoreline in Darrington has remained in a largely natural state. Presumably, development near the river has been limited by flooding and the lack of flood control structures. The riverbank of the Hampton Lumber Mill is armored to protect against flooding. The mill site and the bridge are the only significant modifications to the river shoreline in Darrington.

The Sauk River, as a tributary of the Skagit River, provides habitat for various salmonid fish, including Chinook salmon, which are listed as Threatened under the federal Endangered Species Act. The river also presumably provides habitat to other species, although habitat species supported by the riparian system have not been extensively documented.

2. INTRODUCTION

A. Purpose of the Inventory Report

The purpose of this report is to document an inventory of natural and built conditions in and associated with the Sauk River shoreline area of Darrington, Washington. This inventory has been written in accordance with the Washington State Shoreline Management Act (SMA) and Shoreline Master Program (SMP) Guidelines (Chapter 173-26 WAC), and has been prepared under a Coastal Zone Management grant administered by the Department of Ecology (grant agreement number G0400095).

This inventory will provide a basis for the development of the town's local Shoreline Master Program. Darrington's shoreline area is currently regulated under Snohomish County's SMP. This inventory also provides a basis for developing a "characterization"

of the Darrington shoreline as required by the Shoreline Management Act. Final characterization and analysis of the Darrington shoreline will occur during phase II of the Darrington Shoreline Master Program project and at that time conclusions and recommendations will be presented (*note that it is likely this report will be expanded to include the final characterization and analysis at that time*). While a full analysis has not been completed, this inventory helps to identify key shoreline management issues, land use conflicts, areas of concern and opportunities for environmental and public access enhancement.

B. Inventory Process

This report was prepared by Berryman & Henigar for the town of Darrington. Preparation of the report included three public meetings with the Darrington Planning Commission (March through May 2004); walking accessible portions of the shoreline on March 23, 2004; review of aerial photography, available data and literature; and discussions with representatives of the Sauk-Suiattle Tribe, the US Forest Service, Snohomish County, Hampton Mills, Ecology, and town staff. Some of the background documentation that was reviewed for this inventory included water quality studies, soil surveys, geologic maps, aerial photography, and the Comprehensive Plan for the town of Darrington. A July draft report was reviewed by Ecology with comments provided September 14, 2004.

Preparation of the inventory included development of a series of working maps. These maps describe the location of the town, the Sauk River, floodplain and floodway, critical areas, drainage basin boundaries and other key physical attributes.

The state Shoreline Master Program guidelines (WAC 173-26201(3)(c)) were used to provide the guiding parameters and standards for the creation of this Shoreline Inventory Report. These guidelines require that the following elements of the natural and built environment be included in the shoreline inventory:

- Shoreline and adjacent land use patterns and transportation and utility facilities, including the extent of existing structures, impervious surfaces, vegetation and shoreline modifications in shoreline jurisdiction; Special attention should be paid to identification of water-oriented uses and related navigation, transportation and utility facilities.
- Critical areas including wetlands, aquifer recharge areas, fish and wildlife conservation areas, geologically hazardous areas and frequently flooded areas.
- Degraded areas and sites with potential for ecological restoration.
- Areas of special interest, such as priority habitats, previously identified toxic or hazardous material clean-up sites or eroding shorelines.
- Conditions and regulations in shore land and adjacent areas that affect shorelines, such as surface water management and land use regulations.

- Existing and potential shoreline public access sites, including public rights-of-way and utility corridors.
- General location of channel migration zones and flood plains.
- Gaps in existing information.
- If the shoreline is subject to substantial human changes such as clearing and grading, past and current records or historical aerial photographs may be necessary to identify cumulative impacts, such as bulkhead construction and intrusive development on priority habitats.
- If archaeological or historic resources have been identified in shoreline jurisdiction, consult with the state historic preservation office and local affected Indian tribes regarding existing archaeological and historical information.

C. Study Area

The town of Darrington is located in Snohomish County 29 miles east of Arlington on State Route 530 in the northeastern corner of the county. First established as a night camp for the wagon route linking the Monte Cristo mines to the Puget Sound area, Darrington is located on the west side of the Sauk River in a valley in the Cascade mountain foothills. The population of the town and its urban growth area (UGA) is now about 1,500 people in an area of about 1,874 acres (Darrington 2004). Figure 1 provides an aerial photograph of Darrington and the portion of the Sauk River adjacent to the town.

The Sauk River is the only designated shoreline in Darrington. The Sauk River is an unconstrained low-gradient river that begins with a combination of rainfall and glacier melt in the mountains located within the Glacier Peak Wilderness Area of the Cascade range. The Sauk River gained protection under the federal Wild and Scenic Rivers Act in November of 1978. According to the Act, a river or segments of a river must be “*free-flowing*” meaning that the river flows in a natural condition “*without impoundment, diversion, straightening, rip-rapping, or other modification.*”

The primary focus of this inventory is the regulated shoreline area along the Sauk River that falls within the Darrington town limits, although this inventory also takes note of some upland conditions within Darrington as well as areas outside of Darrington in the Sauk River watershed basin.

D. Shoreline Jurisdiction and Statewide Significance

The Shoreline Management Act states that the minimum shoreline jurisdiction for rivers is 200 feet from ordinary high water mark (OHWM) or floodway and all associated wetlands. The shoreline jurisdiction may be extended to include the 100-year floodplain.

Darrington recognizes the shoreline jurisdiction as those areas within the town limits that are 200 feet landward of the Sauk River floodway or OHWM, whichever is greater, and associated wetlands. For mapping purposes, the FEMA mapped floodway is currently used as the location of the floodway (the floodway may be remapped according to the SMA definition during Phase II). Based on the information available for this inventory, all known associated wetlands occur within the 200-foot shoreline area. The shoreline jurisdiction is shown in Figure 2.

According to the Shoreline Management Act, the Sauk River is considered a “shoreline of statewide significance” because it is a river located west of the Cascade mountain range that has a mean annual flow of 1,000 cubic feet per second or greater.

E. Sauk River Basin

The headwaters of the South Fork of the Sauk River begin with rain and glacier melt originating off of Wilmon Peaks and Monte Cristo Peak to the southeast of Darrington, where the river flows north-northeast. Additional rain runoff and glacier melt follows the topography off the west side of Glacier Peak and flows downhill through a system of drainage pathways leading to the White Chuck River. The North Fork of the Sauk River, running in a valley between the White Chuck and the South Fork of the Sauk River, connects with the South Fork at Bedel, about 15 miles south of Darrington. The White Chuck then joins the Sauk about 8 miles south of Darrington and numerous small streams connect along the way. From its headwaters, the Sauk River passes through forest lands, including the Mount Baker Snoqualmie National Forest and the Henry M. Jackson Wilderness, and moves northwest through the town of Darrington. Darrington is the only urbanized area along the Sauk River. Approximately 6 miles north and downstream of Darrington, the Sauk River is joined by the Suiattle River. The Sauk converges with the Skagit River about 17 miles north of Darrington. The Sauk River basin is shown on Figure 3.

As a tributary of the Skagit River, the Sauk River is located in Water Resource Inventory Area (WRIA) 4 Upper Skagit. This watershed includes all of the land that water flows across or under on its way to the Upper Skagit. The Upper Skagit watershed stretches from south of Darrington to beyond the US/Canadian border. More information about WRIA 4 is available at the Ecology website.

F. Shoreline Segments

The Darrington shoreline of the Sauk River is a single continuous reach of the river. For planning purposes it is occasionally important to divide the Darrington reach into segments to highlight some of the conditions and opportunities that are unique to specific locations.

Segment A is the portion of the river within Darrington jurisdiction north of the Sauk Prairie Road Bridge and adjacent to the lumber mill.

Segment B is the portion of the river within Darrington jurisdiction south from the Sauk Prairie Road Bridge to unincorporated Snohomish County.

Segment C is the portion of the river within Darrington jurisdiction at the southeast of town (separated by an unincorporated area from Segment B).

These planning segments are shown on figures 4, 5 and 6, respectively. In addition to the three identified segments, two unincorporated shoreline areas are located within the Darrington urban growth area to the north and south of Segment C. Table 1 indicates the total length of each river segment within the town's shoreline jurisdiction.

Table 1. Darrington Shoreline Segments

Shoreline Segment	River measurements in lineal feet	River measurements in miles
A	2,280 ft	0.43 miles
B	3,700 ft	0.70 miles
C	1,640 ft	0.31 miles
Total (including unincorporated areas between segments)	13,800 ft	2.61 miles

Source: Snohomish County GIS 2004

Except when noted, inventory descriptions apply to the entire Darrington reach of Sauk River.

3. SHORELINE CONDITIONS

A. *Land Use Patterns, Transportation and Utility Facilities*

1. Land Use and Zoning

Darrington’s current land use is a mixture of residential, wood processing, commercial, public facilities and undeveloped land. Along the Sauk River and within the shoreline jurisdiction, the current land uses today are wood processing, a wood waste site, and undeveloped land. No commercial land uses are located within the shoreline jurisdiction, other than wood processing. (Darrington 2004)

The zoning in Darrington along the Sauk River consists of a mixture of industrial and residential. The Hampton Lumber Mill and wood waste processing facility are currently zoned High Industrial. The southeast portion of the city, which is currently sparsely developed with residential uses (upland of the shoreline area), is also zoned High Industrial. The central eastern portion of the town is zoned Residential-Single Family. The town is considering rezoning all High Industrial areas to Light Industrial/Manufacturing with a Forest Products Overlay. Zoning for Darrington is shown on Figure 7.

Outside of the town, land uses include rural residential, agriculture, recreation and timber resource. (Snohomish County 2003)

Table 2 below presents existing land use percent coverage by shoreline planning segment for upland shoreland areas (those areas of shoreline jurisdiction upland of OHWM and floodway).

Table 2. Existing Shoreland Land Use by Shoreline Segment

Shoreline Segment	Existing Land Use	Approximate Percent Coverage*
A	Wood Processing	100%
B	Undeveloped, Wood Waste Site	Approx. 80% Approx. 20%
C	Undeveloped	Approx. 100%
UGA	Undeveloped	Approx. 100%

*upland of OHWM/floodway

Source: Darrington Comprehensive Plan 2004, Snohomish County aerial photography 2003.

All of the Darrington shoreline areas waterward of the OHWM/floodway and within the water are currently undeveloped areas with the exception of the Sauk Prairie Road Bridge.

2. Built Structures and Impervious Surfaces

It is important to estimate the amount of impervious surfaces (such as buildings and paved surfaces) within the shoreline area because increased impervious surface results in more stormwater runoff and less groundwater recharge. More runoff, in turn, increases river flows during storm periods. Impervious surfaces may also prohibit the movement of water from the land surface into the soil and disrupt natural drainage flows.

This watershed is a very rural and forested area in comparison to many of the surrounding watersheds in the Puget Sound region. Because this watershed is rural and forested, there are relatively few impervious surfaces and built structures throughout the watershed area and most are contained within the town.

Snohomish County recently prepared a land cover analysis for basins in Snohomish County that tracks changes from 1991 to 2001. Table 3 shows the percentage coverage of nearstream areas in the Sauk River basin recorded for 2001.

Table 3. 2001 Nearstream Land Cover Percentage

Medium Density Development	High Density Development	Alpine Rock / Talus Slope	Open Water	Forest	Grass / Bare Ground
2	4	1	3	82	8

Source: Simmonds et al. 2004.

Darrington's built structures include the Hampton Lumber Mill, the airport, some residential areas, a few commercial stores, the Darrington elementary, middle and high schools, a post office and the USFS Darrington ranger station.

Within the Darrington Sauk River shoreline jurisdiction, segment A has the greatest percentage of impervious surface coverage (approximately 90% of the shoreland area). Since the 1940s, this segment has been developed with a lumber mill and wood processing area. The impervious surfaces associated with the mill are the buildings, parking lots and paved driveways. Segment A also includes the Sauk Prairie Road Bridge. The remaining 10% of this segment consists of undeveloped shoreline areas that are periodically submerged by the river.

In contrast to Segment A, the shorelands of Segment B have only about 2% impervious surface coverage associated with compressed gravel access roads serving the mill's wood waste facility. The remaining portion of segment B is

either loose wood waste pilings or undeveloped land. Segment C is undeveloped with no impervious surface coverage.

Table 4 below presents existing built structures and impervious surfaces by shoreline planning segment.

Table 4. Existing Darrington Built Structures and Impervious Surfaces

Shoreline Segment	Built Structures & Alterations	Percent Impervious Surface Coverage of Shorelands*
A	Hampton Lumber Mill and Sauk Prairie Road Bridge	Approx. 90%
B	Gravel access roads and wood waste areas	Approx. 2%
C	Vacant, undeveloped; limited clearing associated with adjacent residential development	0%
Urban Growth Area	Vacant, undeveloped	0%

*upland of OHWM/floodway

Source: Darrington Comprehensive Plan 2004, Snohomish County aerial photography 2003.

Table 5 below summarizes the level of development in Darrington, the shoreline area and the watershed.

Table 5. Development Intensity

Surrounding Use	Darrington	Shoreline Jurisdiction	UGA	WRIA 4 Watershed
Development Intensity	Moderate/Urban	Isolated/limited	Low	Low
Impervious Surfaces	Moderate/Urban	Isolated/limited	Low	Low
Road Crossings	One/Sauk Prairie Road Bridge	One/Sauk Prairie Road Bridge	None	Few
Vegetation	Limited	Many/High	Many/High	Many/High

Source: Darrington Comprehensive Plan 2004, Snohomish County aerial photography 2003.

3. Vegetation

The banks of the Sauk River are generally forested with a mix of deciduous and coniferous trees. Coniferous trees dominate much of the undeveloped area, especially at distances setback back from the river. Along the river, observed evergreens trees appear to be older second growth although it is unclear whether the lack of old growth is due to past logging or flooding. Immediately adjacent to the river banks and within side channels, younger deciduous stands are more common. Deciduous stands also populate the edges of large gravel bars within the river channel. Lesser gravel bars have a limited shrub growth. See photos 4-14.

The exception to dense vegetation, other than the river channel itself, are those to developed areas mentioned above, such as the mill, wood waste site and Sauk Prairie Road Bridge.

4. Transportation

Roads serving Darrington include unimproved residential roads, two-lane neighborhood collectors and principal arterials. Darrington is connected to Arlington to the west and Concrete to the north by State Route 530. The Mountain Loop Highway connects to Granite Falls to the south via a gravel mountain pass that is closed during winter and is currently closed due to bridge damage. The Sauk Prairie Road connects to farm and forest areas to the east.

In the regulated shoreline area, the only public street is the Sauk Prairie Road and bridge that crosses the Sauk River forming the planning boundary between

Segments A and B. Segment A has private on-site roads serving the mill. Segment B has gravel access roads serving the wood waste facility. No major roadways extend through Segment C or the Urban Growth Area (UGA).

A sand boat launch is located on the north side of the Sauk Prairie Road Bridge on private property owned by Hampton Mills (see photo 8). It is our understanding that this site is unofficially open to public use. The only water-related navigation associated with the river is recreational use such as rafting and kayaking.

While the town was historically part of a rail route, the rail road right-of-way connecting to Arlington has been converted to the White Horse Trail. The rail right-of-way that ran north and south through town has been vacated for various uses.

5. Wastewater and Stormwater Utilities

Currently, there is no municipal sewer system in place in Darrington. All of the parcels within the town limits and the UGA are on individual septic systems. The town has an informal stormwater system with limited curb collection where surface water is collected into an open channel with an outfall into the Sauk River on the southwest side of the Sauk Prairie Road Bridge. The drainage channel is shown in Figure 5.

6. Shoreline Modifications

Shoreline modifications are structural alterations of a river's natural bank, for example levees, dikes, flood walls, rip rap, bulkheads, docks, piers or other in-water structures. These modifications may be used to stabilize the river bank and prevent erosion, although modification also may have negative impacts, such as channelization or reflection of wave forces.

Within the shoreline jurisdiction, the Sauk River, Darrington has few man-made shoreline modifications that affect its natural course. Known shoreline modifications are listed below:

- Rip rap/flood wall along the mill site (Figure 4, photo 5)
- Sauk Prairie Road Bridge (Figure 4, photo 7)
- Protective rip rap placed along the shoreline at and south of the bridge (Figure 5, photo 10)
- Protective rip rap placed about 2,200 feet south of the bridge, largely destroyed by the October 2003 flood (unidentified on map, photo 12 shows assumed original location)

The Sauk Prairie Road Bridge and the mills rip rap wall appear to have the most significant impacts on the course of the river due to their structures forcing water

to move in an artificial flow path. The Hampton mill site is protected from the erosive forces of the river and from flooding by a 750-foot section of rip rap/flood wall.

During the October 2003 flood, the river continued its process of cutting the channel to the west just south of the bridge, threatening the bridge approach. Emergency protective rip rap was placed along the shoreline near the base of the bridge in order to act as a man-made barrier against potential impacts.

There are no known dikes, docks, piers or other in-water structures in the Sauk River in Darrington, and none were identified in the town's general vicinity upstream or downstream on the Sauk River using aerial photography.

B. Critical Areas

This section identifies critical areas as defined by the state's Growth Management Act (GMA) RCW 30.70.170, including wetlands, fish and wildlife habitat conservation areas, critical aquifer recharge areas, and geologically hazardous areas. Frequently flooded areas are discussed in the following section under "Floodplains and Channel Migration Zones." Due to the difficulty of identifying critical areas, this section focuses on critical areas located in Darrington and its UGA and not those found throughout the watershed. All of the critical areas identified and located in Darrington's shoreline jurisdiction are shown in Figure 9. The inventory of critical areas was based on several different sources of information, including both published and field-documented, as discussed below.

1. Wetlands

The National Wetland Inventory (NWI) identifies two upland wetlands in the town limits and additional wetlands in the Sauk River channel, waterward of the ordinary high water mark and the FEMA mapped floodway (U.S. Fish and Wildlife Service, Wetlands Data for GIS 2004). Two additional wetlands are identified just west of the town within the urban growth area. The following are the four areas identified by the NWI inventory, not including those wetlands waterward of the mapped floodway:

1. A 12.8-acre palustrine, open water, artificially flooded, intermittent (POWKZ) wetland. This is better known as the Hampton Lumber (or Three Rivers) mill pond, which Ecology has confirmed is an artificial pond used for stormwater management and is not a regulated wetland.
2. A 2.5-acre palustrine, scrub-shrub, saturated/semipermanent/seasonal (PSSY) wetland. This wetland is located in the southeast corner of the town adjacent to the FEMA mapped floodway.
3. A 19-acre palustrine, forested, intermittently flooded/temporary (PFWO) wetland. This wetland is located in the UGA to the southwest of the town.

4. A 2.3-acre palustrine, open water, intermittent (POWZ) wetland referred by Snohomish County maps as Kirk Lake. This wetland is located adjacent to wetland number 3, in the UGA southwest of the town.

2. Fish and Wildlife Habitat Conservation Areas

Birds. The Priority Habitats and Species (PHS) Maps provided by the Washington State Department of Fish and Wildlife (WDFW) indicate that on the eastern side of the Sauk River there is a “large established territory of spotted owls (*Strix occidentalis*).” The maps show “spotted owl management circles” located within Township 32 Ranges 9 and 10 East, near Gold Mountain east of the Sauk River. An osprey nest, listed as a Wildlife Heritage Site, is shown about 1,000 feet east of the Sauk River at the base of Gold Mountain. A colony of Townsend’s big eared bats are noted as living in a private barn about 2,000 feet west of the Sauk River, west of Hampton Lumber Mill. (WDFW 2003)

The Sauk River is listed as a harlequin breeding area. In addition, wintering bald eagles (*Haliaeetus leucocephalus*) may occur within the Sauk River’s shoreline jurisdiction according to information provided on the U. S. Fish and Wildlife Service (USFWS) website.

Due to data incompatibilities, PHS data is not shown on the attached maps.

Fish. Information on special status fish species was reviewed from several sources which described the fish species found within the Sauk River basin. Special status species are species that are listed or proposed for listing under the state or federal Endangered Species Act, identified by WDFW as state Priority Species, or identified by the U.S. Fish and Wildlife Service (USFWS) as Species of Concern. The Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) maps provide information about the location of these species, including an inventory of anadromous and resident fish distribution.

Table 6 presents the WDFW Streamnet database listing of fish presence for the Sauk River.

Table 6. Streamnet Database Fish Presence

PHS Listed Species	Anadromous/ Resident
Fall Chinook Salmon	Anadromous
Spring Chinook Salmon	Anadromous
Summer Chinook Salmon	Anadromous
Chum Salmon	Anadromous
Coho Salmon	Anadromous
Pink Salmon	Anadromous
Sockeye Salmon	Anadromous
Summer Steelhead	Anadromous
Winter Steelhead	Anadromous
Rainbow Trout	Resident
Dolly Varden/Bull Trout	Resident

Source: WDFW Streamnet 2003.

Two of the salmonid stocks in the Sauk River have been listed as Threatened under the federal Endangered Species Act (ESA): the Chinook salmon and the Dolly Varden/bull trout.

In addition to fish, the Sauk River was identified as habitat for giant salamander and tailed frog (WDFW 2003).

3. Critical Aquifer Recharge Areas

Critical aquifer recharge areas are those areas that are essential for recharging ground water used for potable water. Critical aquifer recharge areas need to be protected for their recharge ability, such as by limiting impervious surfaces, and to prevent contamination of drinking water supplies. The Darrington water system uses several wells located at both the north and south ends of town (see Figure 9). Specific recharge areas have not been mapped at this time although one might assume that aquifer recharge in the Darrington area occurs both from the river and from areas of hydric soils along the base of the surrounding mountains.

4. Geologically Hazardous Areas

Landslide Hazards. No known landslide hazard areas were found to exist within the Darrington shoreline jurisdiction. The topography is nearly flat along the river and through most of the town (refer to Figure 9) with little elevation change. Steep slopes exist on the east side of the Sauk River outside of Darrington, as well as throughout the mountainous areas of the watershed, where it is presumed that there are areas of potential landslide hazards.

Erosion Hazards. Within the Darrington shoreline jurisdiction, the erosion hazard areas include locations along the river's shoreline where erosion or

avulsion is likely to occur and may result in damage to or loss of property and infrastructure. These areas have not been mapped.

Seismic and Volcanic Hazards. In September of 2003, an analysis conducted by the Washington State Department of Natural Resources mapped preliminary locations within Snohomish County that could potentially be susceptible to excessive ground shaking during an earthquake (DNR 2003). As part of the *National Earthquake Hazard Reduction Program (NEHRP)*, this data showed that the Darrington area has soil type “E” which is defined as a “soft soil”. Ground shaking during an earthquake is strongest in areas of soft soils, such as in river valleys or along the shorelines of rivers and lakes. The least amount of ground shaking during an earthquake is on bedrock or very stiff soils.

The entire town of Darrington has been mapped by the United States Department of the Interior USGS (2001) to be in a “lahar hazard area.” The term “lahar” means mudflows or debris flows composed mostly of volcanic materials on the flanks of a volcano. These flows of mud, rock, and water can rush down valleys and stream channels at speeds of 20 to 40 miles per hour and can travel more than 50 miles.

Some lahars contain so much rock debris (60 to 90% by weight) that they look like fast-moving rivers of wet concrete. Lahars are one of the deadliest volcano hazards since they can occur both during an eruption and also when the volcano is quiet. The water that creates lahars can come from melting snow and ice, intense rainfall, or the breakout of a summit crater lake.

Historically, lahars churned down the Sauk River inundating valley floors near Darrington. About 13,100 years ago, lahars flowed down both the North Fork Stillaguamish (then an outlet of the upper Sauk River) and Skagit Rivers to the Puget Sound. In the Stillaguamish River valley at Arlington, more than 60 miles downstream from Glacier Peak, lahars deposited more than seven feet of sediment. Shortly after the eruptions ended, the upper Sauk’s course via the Stillaguamish was abandoned and the Sauk River began to drain only into the Skagit River, as it does today.

C. *Floodplains and Channel Migration Zones*

The Sauk River is a braided river, meaning the river has multiple channels that the river runs through. Braided rivers are characteristically very dynamic systems with high rates of lateral shifting and bank erosion. The floodplain (refer to Figure 2) is the Sauk River’s shoreline area which has a one percent chance of flooding each year and has been subject to flooding in the past.

Historic aerial photos taken from 1942 to 1964 show water flow and bank erosion which has led to the river channel’s migration over time. Refer to the enclosed historic aerial photographs. The 1942 aerial photograph is a reference point for determining the degree of channel change. From 1942 to today, the main channel of the Sauk River has moved

laterally from east to west and from west to east within multiple meanders and side channels. The current aerial photograph with the 1942 photo as an overlay (Figure 11) illustrates how the Sauk River has changed throughout the years. These photographs show that the nature of the river is similar to the past where the river continues to shift east and west in both directions. This natural shifting movement has been altered by man-made structures built within the shoreline area including the mill site's rip rap wall and the bridge structure.

D. Degraded Areas and Potential Restoration

Two specific portions of the Sauk River shoreline within Darrington have been significantly altered and would potentially benefit from restoration activities:

- **Restoration Site 1** – Rip and rap and flood berm along the mill site (Figure 12, site 1)
- **Restoration Site 2** - Bridge and associated rip rap to the south (Figure 12, sites 3 and 4)

The Hampton Lumber Mill is continually making improvements to its site operations. Under the current SMP conservancy designation, the mill is limited in its ability to alter the existing structures within the shoreline jurisdiction. It may be possible to increase regulatory flexibility for future mill site improvements while encouraging the mill to restore some of the natural function of the river bank.

The Sauk Prairie Road Bridge is scheduled to be replaced in 2006 by Snohomish County Public Works. The town seeks to work with the county to identify how the bridge replacement project can be used to provide restoration, environmental enhancement and public access.

The remainder of the shoreline area in Darrington is in a largely natural and undeveloped state and may be best protected through preservation. While regulatory limitations under the current conservancy designation will limit extensive new development from occurring along the river, the allowed uses and reasonable use rights may result in development and alteration over time. The river may be better protected if the town, county and other agencies can work to purchase fee simple or protection easements for the undeveloped areas along the river.

E. Existing and Potential Public Access Sites

In Darrington, there are no existing formal shoreline public access sites. With the shoreline area in a largely natural state and due to the extent of the floodplain, there is little connection between the town and the river, despite their close proximity. Currently, there are only two informal/limited access areas in the town:

- **Public Access Site 1** – Sand boat ramp adjacent to the Sauk Prairie Road Bridge. This access point is on private property owned by Hampton Mills and may be lost during the bridge replacement project. (Figure 12, site 2)
- **Public Access Site 2** – Sauk Prairie Road Bridge. While the bridge does not provide direct access to the water, it is the main opportunity for town residents and visitors to view the river within the town. (Figure 12, site 3)

Additional access to the river is provided outside of Darrington including at the Clear Creek and White Chuck campgrounds. Clear Creek campground is located about two miles south of Darrington. The White Chuck campground is located south of Darrington near the Mountain Loop Highway near the Beaver Lake trailhead.

Recognizing the current inaccessibility of the river, providing public access could be one of the primary goals of the Darrington shoreline master program. Opportunities for public access include:

- **Opportunity 1 - Boat launch.** With the replacement of the Sauk Prairie Road Bridge, the town has the opportunity to work with Snohomish County and Hampton Mills to seek replacement of the existing sand boat launch area and to secure its future use by the public. (Figure 12, site 2)
- **Opportunity 2** – Sauk Prairie Road Bridge. As an emergency response to flooding in October 2003, protective rip rap was placed on the southwest corner of the bridge. This protection area includes a bench with views of the river, although it is located on private property. When the bridge is replaced by Snohomish County in 2006, there is an opportunity to provide a public viewing area within the right of way. (Figure 12, site 3)
- **Opportunity 3** – Future park and access areas. While a specific site has not been identified, the town has indicated a desire to secure a site for a future public park and to provide access to the river. Such as site would also allow the town to preserve existing natural areas and habitat. Funding would need to come from grants or other agencies and may limit the amount of property purchased. Ideally, the entire shoreline area in Darrington south of the bridge could be purchased for protection and public use. (Figure 12, site 5)

F. Historical or Archaeological Sites

Historical Sites. The town of Darrington is located downstream of the historic Monte Cristo mining center. Ore deposits were discovered near Monte Cristo in 1889. The large mines closed decades ago and now the mining site is being reclaimed by the forest. Monte Cristo is one of several abandoned mines that could potentially contaminate the Sauk River with arsenic and other toxic chemicals/substances (Ecology 2002).

A recent study titled “*Second Screening Investigation of Water and Sediment Quality of Creeks in Ten Washington Mining Districts, with Emphasis on Metals*” was conducted by

the Department of Ecology in June of 2002. This study investigated water and sediment quality for metals in the Monte Cristo mining district. Some of the metals that were detected downstream included concentrations of arsenic, copper, zinc, lead and mercury.

Archaeological Sites. The State Office of Historic Preservation (SHPO) was contacted as part of the research for this inventory. According to SHPO, archaeological data relating to the shoreline jurisdiction may be available from the Sauk-Suiattle Indian Tribe. The tribe is located north of Darrington along the Sauk River. A site-specific analysis would need to be conducted to locate archaeological sites within the shoreline jurisdiction. No specific archaeological sites were identified in phone conversations with the Sauk-Suiattle Tribe, although this issue may be explored further during phase II.

4. PLANS AND REGULATIONS

Numerous agencies, organizations and citizens have made regional efforts to put together plans and regulations that protect and restore shorelines in general and the Sauk River shoreline specifically.

A. Plans

Darrington Comprehensive Plan. The Darrington Comprehensive Plan provides land use goals and policies for the town, including a future land use map. The Darrington future land use map is consistent with the zoning map provided in Figure 7. The current Darrington Comprehensive Plan was prepared in 1998 and amended in October 2004.

Snohomish County Shoreline Master Program. Snohomish County is currently updating its Shoreline Master Program. Until adoption of the Darrington SMP, the county SMP applies to the shoreline in Darrington. The SMP designates the entire shoreline in Darrington as Conservancy. The county SMP update is expected to be adopted in 2005.

Snohomish County Comprehensive Plan and Darrington UGA. The Snohomish County Comprehensive Plan designated future land uses for the area surrounding Darrington, including areas within the Darrington urban growth area.

For all counties planning under the guidelines of the Growth Management Act (GMA), specific geographical areas that are expected to contain future growth are identified as urban growth areas or UGAs. The UGA for Darrington includes the west bank of the Sauk River immediately south of Segment B and the area north and south of Segment C.

Under GMA, the town of Darrington must plan for the land within its town limits as well as consider the future land uses of those areas outside of the town limits but within the town's UGA. The existing zoning of the UGA area along the shoreline is Residential 20,000 (R-20,000). The county's GMA Comprehensive Plan Future Land Use Map effective October 2003 designates the area Urban Low Density Residential (1 to 6 dwelling units per acre).

Skagit County Salmon Recovery Program. The Skagit County Salmon Recovery Program has a number of projects and programs in progress and planned for the future. Some of these projects include land acquisition, side channel projects, and flood planning. Their focus is on habitat protection and restoration of salmon habitats.

Skagit Watershed Council (SWC) Habitat Protection and Restoration Strategy. The SWC Habitat Protection and Restoration Strategy has strategies for habitat restoration and protection and continues to endorse projects that improve watershed conditions.

United States Forest Service (USFS) River Management Plan for the Skagit River. The USFS River Management Plan provides goals and direction for the Skagit and Sauk rivers in accordance with the Wild and Scenic Rivers Act.

B. Regulations

A number of state and federal agencies may have jurisdiction over land or natural elements within the town's shoreline jurisdiction, in addition to local regulations. Local, state and federal regulations affecting shoreline areas are listed below:

Darrington Municipal Code. The Darrington zoning for the shoreline area is shown on Figure 7. Darrington Critical Areas Regulations were adopted in November 2004 and provide regulations to protect wetlands, habitat, aquifer recharge areas, and geologically hazardous areas. Specifically, the critical areas regulations require a 132 foot wide buffer from OHWM of the Sauk River consistent with the Skagit Watershed Council's recommendations for salmon protection and recovery. The Darrington Municipal Code also contains flood hazard regulations.

Endangered Species Act (ESA). The federal ESA addresses the protection and recovery of federally listed species. The ESA is jointly administered by the National Oceanic and Atmospheric Administration (NOAA) and the United States Fish and Wildlife Service (USFWS). The ESA requires no harm or "take" of threatened and endangered species.

Clean Water Act (CWA). The federal CWA requires each state to set standards for the protection of water quality for various parameters, and it regulates excavation and dredging in waters of the U.S., including wetlands. Certain activities affecting wetlands in the town's shoreline jurisdiction or work in the adjacent rivers may require a permit from the U.S. Army Corps of Engineers and/or Ecology under Section 401 and 404 of the CWA.

Hydraulic Project Approval (HPA). The Washington Department of Fish and Wildlife (WDFW) regulates activities that use, divert, obstruct, or change the natural flow of the beds or banks of waters of the state and may affect fish habitat. Projects in the shoreline jurisdiction requiring construction below the ordinary high water mark of the river in the town could require an HPA from WDFW. Projects creating new impervious surface that could substantially increase stormwater runoff to waters of the state may also require approval.

National Pollution Discharge and Elimination System (NPDES). Ecology regulates activities that result in wastewater discharges to surface water from industrial facilities or municipal wastewater treatment plants. NPDES permits are also required for stormwater discharges from industrial facilities and construction sites of five or more acres.

Wild and Scenic Rivers Act. This legislation was signed into law as Public Law 90-542 on October 2, 1968. Rivers in the National System are classified as wild, scenic or recreational. The labeling terminology refers to the degree of development along the river. The definitions of wild, scenic and recreational from the law are:

“Wild” river areas – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

“Scenic” river areas – Those rivers or sections of rivers that are free of impoundments with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

“Recreational” river areas—Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

5. INFORMATION GAPS

During the inventory process, the following information gaps were identified:

Built Structures and Impervious Surfaces. Impervious surface calculations involved a significant level of effort and detail outside the scope of this project. Estimates were made using aerial photography and were combined with a land cover analysis of the basin provided by Snohomish County. Considering the ability to analyze the area with the available information, more detailed information would not enhance the SMP development process.

Historical or Archeological Sites. Site specific information on archeological sites, if any, was not available. Contact possibilities for these specific sites include the Sauk-Suiattle Indian Tribe and the State Office of Archeology and Historic Preservation (SHPO). It is planned to continue to work with the Sauk-Suiattle Tribe during phase II of the project.

Vegetation. After review of existing documentation of the Skagit River Basin, the Sauk River, and the Darrington area, including reports concerning federal Wild and Scenic Rivers and Habitat and Species Reports and SEPA checklists for the mill no detailed vegetation surveys of the Darrington reach of the Sauk River

were discovered. A reasonable assessment of vegetation can be made from the enclosed photos and aerial photography.

Fish Habitat. WFDW and Streamnet, as well as other sources, document the Sauk River as important habitat for several salmonid species. Existing data did not show specific areas of salmonid spawning or rearing within the Darrington shoreline jurisdiction or provide a detailed assessment of habitat conditions.

Floodway. The Shoreline Management Act defines the floodway differently from the FEMA Flood Insurance Rate Maps (FIRMs). At this time, the FEMA mapping was the only available data for the floodway. The SMA floodway may be mapped during phase II if sufficient elevation data can be obtained. The October 2003 flood, the most recent significant flood, was a 100-year flood, pushing flood deposits beyond the anticipated floodway area. Therefore, physical characteristics, such as flood deposits, have limited use in mapping the SMA floodway.

6. ISSUES OF CONCERN

Based on the inventory, management of the Darrington shoreline likely has fewer issues than other towns and cities. The Darrington shoreline is a relatively small length of shoreline, and it is largely undeveloped and remains in a natural state with the exception of the Hampton Lumber Mill and the Sauk Prairie Road Bridge. In addition to the potential restoration and public access opportunities listed above, shoreline management issues that may be address during phase II include:

Zoning/Environment Designation Conflicts. The current Snohomish County SMP that applies to the Darrington shoreline designates the shoreline in Darrington as Conservancy, which limits most uses and alterations to special circumstances. However, Darrington and county zoning provides for industrial and residential developments, including the existing Hampton Lumber Mill use, that are generally inconsistent with the conservancy designation. Both shoreline environment designations and town zoning should be considered during phase II to see if these overlapping regulations can be made more consistent.

Acquisition of Shoreline Properties. As noted above, the regulatory components of the SMP have an ability to protect the shoreline, but to a limited extent considering reasonable use rights and competing goals of the SMA. Protection might be more effective, and the zoning/environment designation conflict could be better resolved if those properties along the shoreline that are in good natural condition (not including the mill) could be purchased for public ownership.

Coordination with Snohomish County SMP. As Darrington prepares its SMP it should coordinate with the county. The county is concurrently updating its SMP and chunks of the adjacent shoreline remain in county jurisdiction. Resolution on the zoning/environment designation issue and developing a possible public acquisition plan for shoreline properties both require coordination with the county.

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HISTORIC AERIAL PHOTOS

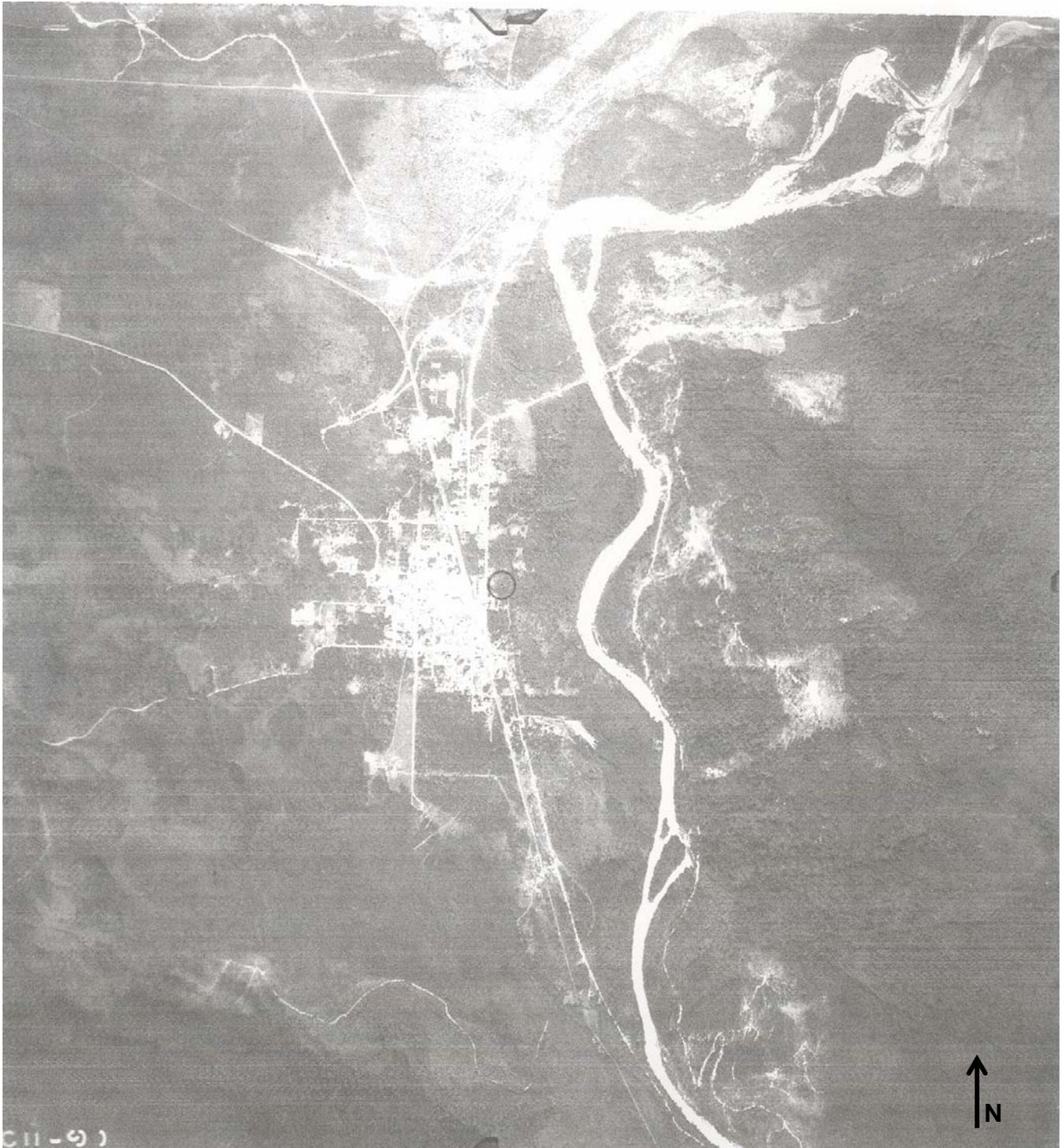


Photo 1. Aerial photo of Darrington and Sauk River, 1942 (obtained from USFS)

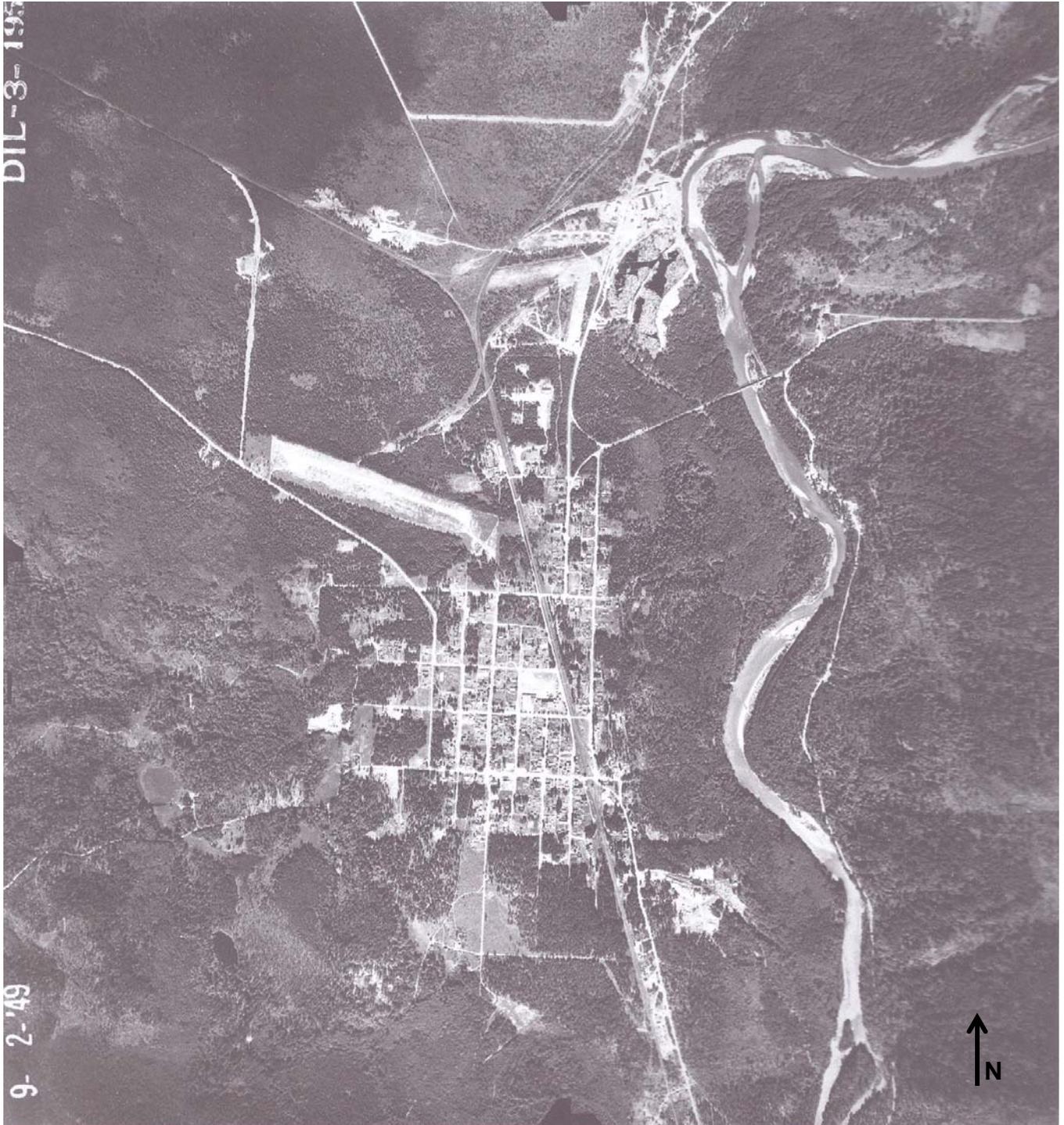


Photo 2. Aerial photo of Darrington and Sauk River, September 2, 1949 (obtained from USFS)



Photo 3. Aerial photo of Darrington and Sauk River, July 23, 1964 (obtained from USFS)

PHOTOGRAPHS



Photo 4. Northeast corner of mill site looking north at side channel. (3/2004)



Photo 5. East side of mill site looking north along river's edge and berm. (3/2004)



Photo 6. Hampton Mills looking northwest from Sauk Prairie Road. (4/2003)



Photo 7. Looking southeast at the Sauk Prairie Road Bridge from the Hampton Mills site. The sand boat launch area is in the lower right of the photo. (3/2004)



Photo 8. Looking southeast from the Hampton Mills site. The sand boat launch area is in the lower center of the photo. (3/2004)



Photo 9. From under the Sauk Prairie Road Bridge looking south. Protective rip rap shows in the center right of the photo at the base of the bridge supports. (3/2004)



Photo 10. Looking at rip rap and restoration plantings placed in response to the October 2003 flood on the southwest side of the Sauk Prairie Road Bridge. (3/2004)



Photo 11. Sauk River looking south from the Sauk Prairie Road Bridge. (4/2003)



Photo 12. From about 2000 feet south of the Sauk Prairie Road Bridge, looking northeast.
(3/2004)



Photo 13. From about 2100 feet south of the Sauk Prairie Road Bridge, looking north. (3/2004)



Photo 14. Looking south from about 2000 feet south of the Sauk Prairie Road Bridge. (3/2004)

FIGURES