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INTERIOR WATERSHED ASSESSMENT PROCEDURE for the CORNING CREEK WATERSHED

February 2000

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A Watershed Restoration Project Funded by Forest Renewal BC.

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1.0 INTRODUCTION

The Corning Creek watershed encompasses approximately 30 square kilometres of mostly forested land near Shuswap Lake in the Southern Interior region of British Columbia. The creek is known locally as Lee Creek, which lends its name to a small, unincorporated settlement near the mouth of the creek. An overview key map is provided at the beginning of this report delineating the study area.

Resource use within the watershed includes water, forestry, mining, cattle ranging and recreational activities. Concerns have been raised by local landowners regarding the sustainability of water quality in Corning Creek and the effects of continued resource development in the watershed. Through the course of this project, applications were made resulting in Corning Creek being designated as a 'Community Watershed' as defined by the *Forest Practices Code of British Columbia Act*. This elevated classification highlights the need for careful resource management in the watershed.

Federated Co-operatives Ltd. (Federated) of Canoe, BC under Forest License A18670 manage forest resources in the Corning Creek watershed. With Federated acting as lead proponent, funding was made available through the Watershed Restoration Program of Forest Renewal BC to conduct an Interior Watershed Assessment Procedure (IWAP) in the Corning Creek watershed. Goals of the Watershed Restoration Program include restoring and protecting forest, water and fisheries resources adversely affected by past forest harvesting practices. In addition, the IWAP may be used as a tool to assist in future forest development planning.

Silvatech Consulting Ltd. (Silvatech) of Salmon Arm was retained by Federated to complete the IWAP. The IWAP was initially conducted according to Interim Watershed Assessment Procedures proposed by the Ministry of Forests, Kamloops Forest Region (Baxter 1998). Revised (Second Edition) Interior Watershed Assessment Procedures were published by the Forest Practices Code of British Columbia in April of 1999 and were subsequently adopted for the remainder of this project (FPCBC 1999). Landmark (formerly High Country) Forestry Consultants Ltd. performed contract coordination, also of Salmon Arm.

The first step of the IWAP was to form a roundtable committee of stakeholders. Participants in the Corning Creek Watershed Roundtable included representatives from industry, government regulatory agencies, local residents, water licensees and local native bands. A roundtable meeting of stakeholders was held on December 17, 1998, at the offices of the Ministry of Forests in Salmon Arm, BC. The intent of the roundtable was to provide a forum for the discussion of resource use interactions in the watershed. Minutes from the roundtable meeting are provided in Appendix A of this report.

The purpose of the remainder of the IWAP was twofold: firstly, to document the extent of existing forest development in the watershed and identify likely areas of concern; and secondly, based on this information, combined with forest development planning, to anticipate possible future concerns. The assessment focused on the potential for changes in the watershed related to altered stream flows, increased mass wasting (landslides), increased surface erosion and disturbed riparian areas associated with forest harvesting and land development.

This report summarizes the results of the IWAP and makes general comments regarding the present state of natural resources within the Corning Creek watershed. Recommendations

regarding the need for further assessments, restoration projects and/or modified future harvest planning are provided in the summary.

1.1 Report Use and Limitations of this Study

This report has been prepared in accordance with generally accepted engineering practices as applied to the forest industry in British Columbia. Recommendations are the professional opinion of the author(s). Professional values include competence, ethical conduct, individual accountability and responsibility and a commitment to society. Silvatech assumes responsibility for the quality of reporting and the accurate representation of information contained herein.

However, interpretation of field conditions and predicted impacts of future development are judgmental in nature and based on limited field investigation of current and historical evidence. Natural variability in surface and subsurface conditions may create unforeseen situations. Additionally, extreme environmental conditions could foster drastic responses that are unpredictable. It is therefore advised that users of the information in this report are aware of its limitations and assume responsibility for its use. Silvatech's directors, managers, and employees assume no responsibility for the use of information or recommendations contained herein.

1.2 Objectives

The objectives of this project were:

- to characterize the present state of natural resources within the Corning Creek watershed and identify existing resource use interactions and linkages;
- to complete an Interior Watershed Assessment Procedure (IWAP) for the watershed aimed at identifying existing problem areas and possible future forest harvesting impacts that may result in alterations to peak flows, riparian areas, rates of surface erosion and mass wasting;
- to make recommendations regarding the need for further or more detailed watershed component assessments and/or restoration projects; and
- to make recommendations regarding the approach to future forest development.

2.0 STUDY AREA

2.1 Location

Corning Creek, known locally as Lee Creek, drains approximately 30 square kilometres of mostly forested land into Shuswap Lake in the Southern Interior of British Columbia. The watershed is located approximately 5 kilometers west of the town of Scotch Creek on the north shore of Shuswap Lake, approximately 60 kilometres northeast of Kamloops. The study area falls within the jurisdiction of the Salmon Arm Forest District

and the Kamloops Forest Region. The Corning Creek watershed can be found on National Topographic Series (NTS) mapsheet 82L/13 and TRIM sheets 82L093 and 82M003.

Access to the lower end of Corning Creek is via the Squilax-Anglemont Road. Access to the upper areas is available along forest service roads originating in Lee Creek and connecting through to Nikwikwaia (Gold) Creek and Scotch Creek. An overview key map is provided at the beginning of this report delineating the study area.

2.2 Physiography

The study area is located within the Shuswap Highlands ecosection of the Columbia Highlands ecoregion (Demarchi 1995). Elevations range from 347 metres at Shuswap Lake to approximately 1820 metres at the headwaters. Corning Creek originates on the gently sloping Adams plateau, gathering tributaries and eventually dropping into a steep-sided, deeply incised valley along its lower mainstem channel. As it emerges from the incised valley and approaches Shuswap Lake, the creek briefly crosses a gently sloping alluvial fan.

The Shuswap Highlands were mostly covered by ice during the Fraser glaciation. The effects of glaciation were to round off and reduce upland relief while steepening and deepening the main valleys (Holland 1976). A mantle of undifferentiated till deposits covers most of the Corning Creek watershed. Steep slopes in the central valley area are shallow to bedrock. Near Shuswap Lake, Corning Creek intersects a terrace delta deposit consisting of well-sorted sands and gravel, possibly related to deposits from Scotch Creek. Some of the fan deposits at the bottom of the Corning Creek watershed are post-glacial. This indicates that natural mass wasting events and sedimentation have been ongoing in the Corning Creek watershed since the Fraser glaciation. (Geological Survey of Canada 1963.)

Bedrock in the Corning Creek watershed belongs to the Sicamous Formation, which consists mainly of limestone and argellite. The upper plateau areas in the headwaters are overlain by the "v" formation, which consists of andesitic and basaltic volcanic rocks. (Department of Energy, Mines and Resources 1969.)

Soils in the Corning Creek watershed are variable depending upon the parent material, moisture and ecological regime. Taxonomy classes are dominantly Brunisols with some Podsols and Luvisols. Generally the soils contain 20 to 50% coarse fragments. Soil textures range from sand to loamy sands and are generally, moderately well drained. The fluvial fan and delta terrace deposits are more highly sorted, containing a higher fraction of sand and gravel (Department of Energy, Mines and Resources 1973).

Preliminary results from terrain stability mapping in the Corning Creek watershed indicate potentially unstable and unstable terrain (terrain classes IV and V) with high erodibility and fine sediment transfer potential throughout most of the central valley. The moderate to gentle slopes and the upper plateau areas form relatively stable terrain (terrain classes I, II, III) with variable (low to high) erosion and fine sediment transfer potential (Preliminary Terrain Stability Mapping provided by EBA Engineering Consultants Ltd. November 1998).

2.3 Climate and Hydrology

The Corning Creek watershed is located in the Shuswap Highlands Hydrological Zone (FPCBC 1995). Mean annual precipitation is in the 300 - 500 millimetre range on slopes above Shuswap Lake and between 500 - 1,000 millimetres on the plateau region based on regional estimates. Mean daily temperatures in July are typically 16 - 20 degrees Celsius (MOF 1992). Climatic conditions vary with changes in elevation and aspect.

Biogeoclimatic zones found within the study area are predominately Interior Douglas Fir (IDFmw2) in the lower elevations above Shuswap Lake; Interior Cedar Hemlock (ICHmw3 and ICHmk1) in the middle elevations; and Englemann Spruce, Sub-alpine Fir (ESSFwc2) at higher elevations on the Adams Plateau (Lloyd 1989).

Corning Creek is a third order stream where it discharges into Shuswap Lake. It should be noted that during the drier season, Corning Creek frequently dewaters as it crosses permeable alluvial deposits in the lowest reach, and a surface water connection to Shuswap Lake is often not maintained. Upstream, the Corning Creek drainage network includes approximately 25 kilometres of mapped stream channel. None of the first and second order tributaries to Corning Creek are named.

Field observations have confirmed that a channel mapped on TRIM as connecting to Freeman Brook actually discharges into Corning Creek. The tributary may contribute some flows to Freeman Brook, however, only during peak flow periods. The stream connections may have been altered by local water users during the construction of storage ponds at the point of diversion. The connection between that tributary and the Corning Creek mainstem is not mapped on the 1:20 000 scale TRIM, but has been indicated on the map provided.

Water Survey of Canada (WSC) has been gauging Corning Creek since 1981. The gauging station is a continuous gauging system and is located in the lower canyon of Corning Creek above the top of the fan. Historic extremes of discharge (maximum and minimum) for the period of record for the gauge, published by the WSC, are provided in Appendix B. According to the WSC data, the extreme discharge event for the period of record occurred quite recently, in May of 1997 (8.23 m^3/s). The next highest annual maximum was recorded in 1982 (8.15 m^3/s) and there were a series of relatively severe annual floods in 1986, 1987 and 1988 (7.45, 7.18 and 7.69 m^3/s respectively). Recorded annual maximums typically ranged between 3.0 and 8.5 m^3/s and with one exception (June 3, 1996), all recorded peak flows occurred in May.

A flood frequency analysis was conducted using the fifteen years of gauging data. The results of this analysis are presented in Appendix B. Based on a Log-Normal distribution of the data, the mean annual flood was approximated at 5.4 m^3/s, and the 100 year flood was 10.9 m^3/s. The aforementioned 1997 annual maximum fits the curve at approximately a 10-year return period. A flood of this magnitude is not considered extreme; however, it was of sufficient size to be considered a channel-forming event.

The Ministry of Forests (MOF) maintains a weather station near the headwaters of Tracey Creek, located approximately 40 km north of the study area. The weather station is an automatic recording and remote retrieval facility, which monitors temperature, precipitation, relative humidity, wind speed and wind direction from April 1 - October 31,

annually. The information is used to generate fire weather indices for the Adams Lake area. Data from the station may be of some limited use in hydrological analyses for the Corning Creek watershed. Allowances must be made for local variations in weather and precipitation caused by altitude, orographic effects and differences in aspect. The period of record for the station is relatively short and as previously indicated, data is limited to the summer season.

3.0 RESOURCES

3.1 Forest Resources

Federated Co-operatives Ltd. under Forest License A18670 manage forest resources within the Corning Creek watershed. International Forest Products Limited, Adams Lake Lumber Division, (Interfor) operates immediately adjacent to the western watershed boundary and portions of Interfor's road system pass through the Corning Creek watershed. Some private land logging has also occurred in the study area.

As mentioned above, the predominant biogeoclimatic zones in the Corning Creek watershed are Interior Douglas Fir, Interior Cedar Hemlock and Englemann Spruce, Sub-alpine Fir. All of the primary Interior coniferous tree species are represented within these biogeoclimatic zones, including Douglas fir, western red cedar, western hemlock, western larch, lodgepole pine, white pine, white spruce, Engelmann spruce, hybrid spruce and subalpine fir. Deciduous tree species present include paper birch, trembling aspen and black cottonwood. According to regional data, forest productivity in the area ranges from 3.5 to 6.3 cubic metres per hectare per year (MOF 1992).

Timber harvested in the Corning Creek area supplies several different operations: most of the sawlogs and peelers go to the log dump at Lee Creek and are eventually towed to Federated's Canoe mills. Poles are purchased by BJ Carney or Bell Pole and pulpwood is transported to either Cache Creek or Kamloops. Federated's mill and operations contribute significantly to employment in the Salmon Arm area.

Logging and road construction in the Corning Creek watershed began in the 1930's and harvesting rates increased in the 1970's. Forest harvesting has occurred steadily since that time. A total of 57 kilometres of roads currently exist in the study area. A limited amount of road and trail deactivation has been completed within the watershed. To date, forest harvesting techniques used in the area of Corning Creek consist primarily of clearcutting with conventional ground skidding systems and cable yarding systems. Some partial cutting systems have been used in the past.

Private land logging is limited to the lower portions of the Corning Creek watershed. Both clearcut and partial cutting systems have been used in these areas. As these operations were not controlled by the Ministry of Forests, no information on the harvesting or replanting of cut areas is available. For the purposes of this study, estimates of basal area removal and hydrologic recovery were made through airphoto interpretation.

Reforestation by planting has been initiated throughout the commercially harvested areas of Corning Creek watershed. Depending upon tree species and site location,

leader growth can range up to 60 centimetres per year. Stand tending treatments, including pruning, spacing and brushing, have been undertaken as necessary by Federated and the Ministry of Forests.

At least one significant fire has occurred within the study area, affecting a large portion of the upper watershed (approximately 566 hectares). The fire occurred in 1960 and considerable natural regeneration has taken place since that time. As part of this project, field surveys were conducted to better represent the state of recovery of the burn area in the Equivalent Clearcut Area (ECA) calculations.

Current ECA values for the watershed and each sub-basin are presented in Section 5.1. The totals include both public and private land cleared for the purposes of forest harvesting, mining, agriculture, and powerline right-of-ways. As indicated above, lands affected by forest fires have also been included. Detailed ECA calculation tables are provided in Appendix C.

3.2 Water Resources

Water supplied by Corning Creek is of significant value and importance to many residents in the area. This is reflected by the recent designation of the basin as a 'Community Watershed', as defined by the Forest Practices Code of British Columbia Act. The Ministry of Environment, Lands and Parks (MELP), Water Management Branch, has issued fifty water licenses for the abstraction and use of surface water within the Corning Creek watershed. Maintaining water quality and seasonal availability of flow in Corning Creek is critical to those depending on the resource.

The earliest water license on Corning Creek dates back to 1910 and new licenses have been issued as recently as 1996. According to Mr. J. Cooperman, domestic water users have formed into three main user groups to reduce costs and share facilities. This has also reduced the number of intake sites on the creek. A detailed listing of licensed water users in the watershed is provided in Appendix D of this report.

Most of the water users on Corning Creek divert flows for domestic use, with one permit being issued for irrigation. The total permitted quantity of water that could be abstracted, if maximum permitted demands were met, is in the order of 27,000 gallons (or 122,000 litres) per day. According to the WSC gauging records, the lowest recorded flow in Corning Creek was 8 litres per second or 690,000 litres per day in November of 1987, outside of the irrigation season. Thus, in a theoretical worst case scenario where peak demand coincides with seasonal low flow, approximately 18% of the total creek flow would be abstracted for domestic uses. Typically, however, domestic water users do not abstract close to their permitted maximum. Based on these approximations, water demands only rarely affect flows in Corning Creek to a significant degree. It should be noted however, that reduced flows due to licensed water demands may make a difference to the distance surface flows are maintained in the channel on the alluvial fan approaching Shuswap Lake (most intakes are located at or near the apex of the fan).

Nine water licenses (one pending) have been issued for the abstraction of water from Freeman Brook. Available water in Freeman Brook may be dependent on flows in a tributary of Corning Creek. Two storage ponds have been constructed on a channel confirmed in the field as a tributary to Corning Creek, but originally mapped on TRIM as

Freeman Brook. The MOE files indicate that these storage ponds are considered to be part of Freeman Brook. Licensees drawing water from the ponds are listed as using water from Freeman Brook, whereas they are in fact drawing water from a tributary to Corning Creek. The storage ponds may however, contribute some flow to lower Freeman Brook below the ponds by providing an opportunity for increased local groundwater recharge. It is difficult to determine what the natural configuration of the creeks was prior to construction of the storage pond facilities.

Permitted water uses on Freeman Brook include domestic, irrigation and storage. The total permitted quantity of water that could be abstracted from Freeman Brook if maximums were met is 13,500 gallons (61,000 litres) per day for domestic use and 368 acre-feet (454 million litres) per year for storage and irrigation use. No data on typical flows in Freeman Brook were available and it is not known what portion of this licensed use is abstracted from the storage ponds or intake sites downstream. As previously discussed the Freeman Brook water licenses using the storage ponds are in fact abstracting water from Corning Creek.

Many private residences along the shore of Shuswap Lake are licensed to use water from Shuswap Lake in the vicinity of the mouth of Corning Creek. Although immune to flow fluctuations in Corning Creek and Freeman Brook, these users may be affected by changes in water quality entering the lake.

'Community watershed' status was officially assigned to Corning Creek in October 1999. The watershed delineated by MELP does not include those areas originally mapped as Freeman Brook, which should now be considered as part of the Corning Creek watershed. It is not known whether or how licensed water users on Freeman Brook were included in the application process.

The *Forest Practices Code of British Columbia Act* provides restrictions on forestry and range practices in community watersheds in excess of non-designated watersheds. Appropriate standards of practice are discussed later in this report under future harvesting recommendations (see Section 6.3).

3.3 Fish and Wildlife

No fisheries information was available for Corning Creek on the Ministry of Fisheries" Fisheries Information Summary System (FISS). Nonetheless, stream gradients are not sufficiently steep to exclude fish or eliminate fish habitat from the channel. Rainbow trout *(O. mykiss)* likely inhabit portions of the watershed. No lakes exist in the headwaters of Corning Creek to provide a source of fish stocks to the creek. The seasonal connection of the stream to Shuswap Lake may prevent fish access during portions of the year. Other barriers to fish movement were not identified during the limited field investigation undertaken through the course of this project.

The neighboring streams of Adams River and Scotch Creek are both well known for significant populations of sockeye salmon (*Oncorhynchus nerka*), coho salmon (*O. kisutch*), kokanee (*O. nerka*), pink (*O.gorbuscha*), chum (*O. keta*), Chinook (*O. tshaawytscha*), Dolly Varden (*Salvelinus malma*), mountain whitefish (*Prosopium williamsoni*) and rainbow trout *(O. mykiss)*. Some shoreline spawning of these species may occur in the vicinity of the mouth of Corning Creek.

The Corning Creek watershed supports a wide range of wildlife populations typical of the Southern Interior region. Deer (*Odocoileus virginiana* and *O.hemionus*), moose (*Alces alces*) and black bear (*Ursus americanus*) are known to populate the study area. Deer winter habitat has been identified on the south-facing slopes above Shuswap Lake (C.L.I. 1975). The specified winter range supports deer from surrounding areas; however, relative snow depths can be a limiting factor affecting annual use of the area.

One trapline permit has been issued in the study area, permit #TRO0337T004. The occurrence of rare, endangered or regionally significant wildlife has not been documented for the Corning Creek watershed.

3.4 Agricultural Use

A small amount of relatively flat benchland along the lower reaches of Corning Creek has been cleared for agricultural purposes. Operations include hay and alfalfa production and livestock operations. Other than the lower reaches of Corning Creek, no land in the study area has been cleared solely for the purposes of agriculture. As previously mentioned, water is diverted from Corning Creek for agricultural irrigation purposes.

One active grazing license has been issued for portions of the study area. License #RANSA1139 permits 420 AUM (animal unit months) in the Corning Creek watershed from May 15 to September 30. Another grazing license may be available for the year 2000 (unreferenced personal communication with Harold Hetherington, MOF). Due to limited grazing opportunities, cattle use is widely dispersed. Biodiversity objectives and strategies are followed in the region to create and maintain a mosaic of habitats through managing grazing intensity. Grazing is scheduled to allow plants and soils adequate recovery time between exposure to livestock. Over-grazing is avoided and some ungrazed sites are maintained. Critical deer winter range identified in the study area is managed to minimize competitive grazing.

In both open range and fenced pastures, heavy cattle use adjacent to streams may cause degradation of streambanks and increase sedimentation in the streams. Special management techniques may be required to limit cattle access near sensitive streams. Cattle use is mostly focused in the upper watershed as steep valley walls limit access to the lower mainstem.

Most of the available forage in the Corning Creek watershed is located in existing cutblocks and around other disturbances associated with harvesting, including landings and roadsides. For this reason, ranchers make frequent use of logged areas and are dependent upon the access provided by forestry road networks. In cutblocks subject to high cattle use, newly planted trees may require protection from possible browsing damage and trampling by cattle. At the same time, cattle grazing can play an important role in conifer survival by controlling competing vegetation. Cooperation and communication between ranchers and the forest licensee is important in achieving integrated resource management objectives.

3.5 Mineral Resources

The British Columbia Ministry of Energy and Mines has a complete record of all known mineral resources, titles and mines in the area. Massive sulfide (copper-lead-zinc) prospects have historically been developed in the area surrounding the Corning Creek watershed. A search of the database for NTS mapsheets 82L13E and 82M03E revealed 65 mineral claims in good standing belonging to approximately ten different exploration companies. Only one company is known to be active inside the Corning Creek watershed; however, the extent of any development is unknown. No active or past mineral operations were observed during this assessment or the Erosion and Mass-wasting Risk Assessment recently completed by Silvatech (Silvatech 1999).

3.6 Recreation and Other Uses

The Corning Creek watershed provides some opportunities for various recreational activities. Recreational use may include, but is not limited to, hunting, fishing, snowmobiling, hiking, horseback riding, mountain biking and camping. As is clear by the list of activities, recreational use may occur throughout the year. No information was found documenting the extent or frequency of recreational use in the watershed.

Landscape inventory mapping has been completed for the Corning Creek watershed. Landscape sensitivity ratings are moderate on the south-facing slopes above Shuswap Lake. This is due to the high visibility of the areas from Sorrento and Shuswap Lake. Visual quality objectives (VQO) for these areas call for partial retention to modification of forests. The plateau areas of the upper watershed are not considered to be visually sensitive.

4.0 METHOD OF ASSESSMENT

The following sections describe briefly the procedure and methods used to provide the information needed to assess hydrologic conditions and risks associated with forest development in the Corning Creek watershed, according to the second edition (April 1999) of the IWAP guidebook.

4.1 Corning Creek Roundtable

The first step of the IWAP was to form a roundtable committee of stakeholders. Participants in the Corning Creek Watershed Roundtable included representatives from industry, government regulatory agencies, local residents, water licensees and native bands. A roundtable meeting of stakeholders was held on December 17, 1998, at the offices of the Ministry of Forests, Salmon Arm Forest District, in Salmon Arm, BC. The intent of the roundtable was to provide a forum for the discussion of resource use interactions in the watershed. Minutes from the roundtable meeting are provided in Appendix A of this report.

Once members of the roundtable have had an opportunity to review a draft of this report, a second meeting will be held to discuss its findings. The role of the roundtable through the IWAP process has been and will continue to be:

- To identify issues and provide background information to the hydrologist conducting the assessments.
- To review the results of the assessment and ensure that watershed issues have been satisfactorily addressed.
- To review the recommendations provided by the hydrologist and assist in the incorporation of those recommendations into the forest development plan to best protect watershed values.

Minutes of the second roundtable meeting will be attached to the final version of this report and any required changes to its contents will be made at that time.

4.2 Compilation of Existing Information and Base Maps

Various information sources were reviewed to generate digital base maps and collect the data required for the completion of the IWAP. Existing information and references on local physiography and resource use in the watershed were compiled to provide background knowledge and assist in the subsequent detailed assessments. Information sources reviewed include:

- 1:15,000 (approximate scale) 1994 colour aerial photography.
- 1:40,000 (approximate scale) 1997 colour aerial photography.
- 1997 Orthophoto Mapping.
- Federated Co-operatives Ltd.'s Forest Development Plan for Forest Licence A18670 for the period January 1, 1999 to December 31, 2003; 1:30,000 Mapsheets 82L093 and 82M003.
- 1997 (projected) Ministry of Forests' digital Forest Inventory Mapping including .FC1 files.
- Terrain Management Inventory Mapping (TRIM) digital files.
- 1998 Terrain Stability Mapping (Preliminary) by EBA Engineering Ltd.
- WSC stream gauge information.
- MELP water license information.
- Fisheries Information Summary System (FISS) files.
- Surficial Geology (GSC. 1975).
- Bedrock Geology Mapping (Department of Energy, Mines and Resources 1969).
- Soils maps (Department of Energy, Mines and Resources 1973).
- Biogeoclimatic Mapping.
- Forest Service recreation maps.
- Landscape Inventory Analysis maps.

Project maps were developed using TRIM digital mapping files as a base. The existing road network was confirmed and updated using the 1997 orthophoto mapping and recent harvesting plans. Relevant information and polygons from the above-mentioned sources were digitally added to the TRIM base maps. The resultant maps have been included as Appendix E to this report.

4.3 Equivalent Clearcut Area

Equivalent Clearcut Area (ECA) is a measure of the extent of harvesting and the amount of hydrologic recovery at a specified time within a watershed. This information was used to assess the likelihood of changes to flow regimes in the study area. ECA levels were calculated for the Corning Creek watershed and its sub-basins using digital forest cover information. Four mapsheets were required to cover the study area. Except where new field data were available (see below), tree heights were estimated using silviculture information contained within the .FC1 files and projected to 1999 according to estimated leader growth data.

The Corning Creek watershed includes a large historical burn area near the headwaters of the creek. The affected area is of sufficient size to significantly influence ECA levels in the watershed. Recovery following the burn was found to be variable and, in order to determine ECA levels with improved confidence, a field assessment of the affected areas was made. On-site surveys of tree heights and densities were made and this information was incorporated into the ECA evaluation.

According to the IWAP methodology, the watershed was divided into two elevation bands to account for vertical variability in runoff-generating mechanisms. In a typical, spring snowmelt-governed watershed, low areas are usually snow free while snow is actively melting at middle and higher elevations at the time that peak flows occur at the discharge end of the watershed. Research in the Interior of British Columbia has shown that snow typically covers the upper 60% of a watershed when streamflow levels begin to rise in the spring (FPC 1995). To assess the effects of harvesting at higher elevations, a hypsometric curve was plotted and the elevation at which 60 percent of the watershed area was above was determined. The contour corresponding to that elevation was then highlighted on the project base maps as an H60 line. Forest cover removal in areas above the H60 line was considered to more significantly affect major snowmelt peak flows in the watershed.

Excel worksheets were developed to calculate the present (Fall 1998) ECA's for each sub-basin and the Corning Creek watershed as a whole, above and below the H60 line. The separation of equivalent clearcut areas according to the H60 line was done for the purpose of discussion and no weighting factors according to elevation bands were applied to the final ECA figures. To access the effects of proposed harvesting, ECA levels were subsequently recalculated to include future cutblocks according to Federated's 1999 - 2003 Forest Development Plan. The results of these analyses were used to evaluate the likelihood of peak flow alteration according to the IWAP.

A full set of the ECA worksheets is provided in Appendix C. Each worksheet can be easily adjusted or adapted to reflect updated stand height information and/or alternative harvesting scenarios should future plans change. Digital copies of the worksheets will be provided to Federated for this purpose.

4.4 Reconnaissance Channel Assessments

A Reconnaissance Channel Assessment Procedure (ReCAP) was conducted in the Corning Creek watershed to evaluate channel stability along mainstem alluvial stream

reaches and major tributary channels. Assessments were broken into office and field phases. The office phase examined aerial photography to identify any obvious changes in stream morphology or other areas of concern in the watershed. The field phase consisted of overview inspections of selected reaches. Detailed methodologies used during the two phases are discussed below.

4.4.1 Aerial Photograph Analysis

A set of 1:15,000 (approximate scale) 1995 airphotos covering the watershed was provided by Federated for review. In general, both mainstem and tributary channels were found to be too small and forest cover too dense to permit satisfactory assessment of channel conditions. Areas of potential impairment, where discernible, were marked on the orthophoto maps to be confirmed in the field. This would include visible erosion sites, unnaturally wide channel sections, landslide and debris flow tracks, major road crossings, cleared riparian areas, large debris jams, etc.

Using the aerial photography and TRIM base maps, reach breaks were delineated for the mainstem and main channels in each sub-basin, downstream of forest development. A reach is a fundamental channel unit defined as a length of channel homogenous in stream discharge, hillslope connectivity, channel pattern and channel gradient. Although channel characteristics varied somewhat along each reach, the response of the channel to forestry-related activities was expected to be relatively uniform. Reaches have been indicated numerically on the base maps included in Appendix E. A longitudinal profile was generated for the mainstem channel to assist in the identification of reach breaks. Average gradients were calculated for each reach and noted on the profile. The mainstem profile is included as Appendix F to this report.

Where poor visibility on the aerial photography made analysis difficult, reach breaks were confirmed and, if necessary, added or adjusted in the field. It should be noted that, in this reconnaissance level assessment, not all reaches or reach breaks were subject to field inspection.

WSC streamflow data were also reviewed prior to field surveys to reveal any apparent trends and/or identify any recent hydrological events of significance to present channel conditions in Corning Creek.

4.4.2 Field Assessments

On November 9, 1998, a helicopter reconnaissance flight was made over the watershed aimed at identifying hillslope and channel features not visible on aerial photography. Data for the EMRA was also collected during the flight. Weather conditions and poor visibility on the upper plateau focused efforts toward the lower incised valley where ground access was difficult. Notes and photographs were recorded and the information obtained was used to direct more intensive ground surveys.

Based on the results of the airphoto review and helicopter overflight, a field assessment plan was assembled for the watershed. The plan laid out strategic sites and channel sections to be surveyed that would provide a reasonable overview of conditions in the watershed. The plan was adaptable in that, if unforeseen conditions arose or became

obvious in the field, additional inspections or site surveys could be undertaken. Whenever potentially impaired channel conditions were observed, efforts were made to determine or confirm the upstream source of the impairments, if any.

While traveling between the sites, easily accessible channel sections and road crossings were quickly spot-checked for obvious changes or problems. This served as a further screen to detect problem areas that may have been missed during the airphoto review and overflight.

As part of the field procedure, expected stable channel types described in the *Channel Assessment Procedure (CAP) Field Guidebook* (FPC 1996b) were compared to existing channel types in the watershed. Where conditions appeared disturbed or unstable, field indicators were recorded and the level of disturbance was estimated. Channel sensitivity, channel instability and evidence of possible changes to flow regimes were identified and described. Additional sites, not previously identified by the airphoto analysis, were investigated where and when observed conditions suggested the possibility of undetected problem areas. Copies of the field notes are provided in Appendix G.

Where lengths of channel were surveyed, CAP Field Form 1 was completed. Channel gradient, depth, bankfull width, and largest stone moved by flowing water were measured at several locations along each surveyed channel section. Hip chains were used to record channel distances. The completed field forms are also included in Appendix G.

During the field surveys, representative photographs were taken of exceptional and/or typical features. Roll and frame numbers of photographs were recorded in the field notes. Documentation of the site photos collected during the field assessment is found in Appendix H of this report. A binder containing all original site photographs has been provided to Federated for their records.

4.5 Watershed Report Card

Using the compiled information, base maps and aerial photographs, watershed report cards were prepared for the Corning Creek watershed under existing and future planned conditions. Assessed parameters and the information sources are listed below:

- Percentage of watershed harvested (forest cover map).
- Equivalent clearcut areas (.FC1 forest cover info and Development Plans).
- Road densities (updated base map and Development Plans).
- Lengths of roads as high sediment source (EMRA).
- Lengths of roads on potentially unstable terrain (terrain stability mapping).
- Landslides (EMRA, airphotos and field).
- Number of stream crossings (base map and development plans).
- Length of stream logged to the streambank (base map, orthorphotos and Development Plans).
- Length of unstable and/or disturbed stream channel (airphotos and field).

Values for these indicator parameters were derived according the methodologies outlined by the original Forest Practices Code IWAP and CAP guidebooks (FPC 1995 and 1996b, respectively).

5.0 ASSESSMENT RESULTS AND DISCUSSION

Results of the Corning Creek IWAP are summarized in the following sections and on the map provided in Appendix E.

5.1 Equivalent Clearcut Area (ECA)

Current equivalent clearcut areas (ECA's) for the watershed and each sub-basin are presented in Table 5.1.1. Detailed ECA calculation worksheets are provided in Appendix C.

Table 5.1.1 1999 Equivalent Clearcut Areas (ECA)

Watershed Sub-basin	Sub-Basin Area (ha^2)	Equivalent Clearcut Area (December 1999)* (ha)	ECA %
Upper	1000	373.6	37.4
East	590	132.3	22.4
Ponds	270	51.7	19.1
Residual	1230	222.2	18.1
Total Watershed	3090	779.8	25.2

* *Area includes both public and private land cleared for the purposes of forest harvesting, mining, agriculture, powerline right-of-ways and lands affected by forest fires.*

ECA levels (1999) in the Upper sub-basin of the Corning Creek watershed were estimated to be high, partly due to historically burned areas within the sub-basin. In other sub-basins, and the watershed as a whole, ECA levels were found to be moderate. No weighting for areas above the H60 line were applied to these estimates.

The Residual sub-basin, by definition, consists of the lower, residual portions of the watershed left over once the other sub-basins in the watershed have been delineated. The Residual sub-basin is not a self-contained watershed and disturbances in other sub-basins upstream can affect its stability. Conditions in the Residual sub-basin must therefore be considered in the context of the watershed as a whole. The percent ECA's for the Residual sub-basin, shown in Tables 5.1.1 and 5.1.2, indicate little within the context of the ECA/peak flow model discussed in this section.

Assuming no further forest harvesting, ECA levels in the watershed would decrease with time according to the IWAP model for hydrologic recovery. Based on estimates of growth rates, the following table was generated:

Table 5.1.2 Recovery of % ECA by Sub-basin Assuming No New Harvesting in the Watershed

Year	Upper Sub-basin	East Sub-basin	Ponds Sub-basin	Residual Sub-basin	Total Watershed
1999	37.4	22.4	19.1	18.1	25.2
2000	37.4	22.4	19.1	18.1	25.2
2001	28.0	18.1	19.1	17.0	21.0
2002	25.1	18.1	19.1	17.0	20.0
2003	24.9	18.1	19.1	16.5	19.8
2004	24.3	18.1	19.1	16.4	19.6

Some significant reductions in ECA values occur in the next five years as a result of tree growth and hydrologic recovery, especially in the Upper sub-basin. The recovery of historically burned areas plays an important role in this calculation. Stand heights and leader lengths used in this assessment were based in part on field surveys conducted for this project.

Future planned harvesting in the Corning Creek watershed is preliminary and proposed blocks (867-1,2,3,4 and 5) shown on the accompanying base map. The proposed blocks would increase the ECA in the Upper sub-basin by 2.4%, in the East sub-basin by 1.3% and in the Residual sub-basin by 6.0%. Combined, the ECA for the total watershed would increase by 3.4% following the harvest of the proposed blocks. All five of the proposed blocks are in the vicinity of the H60 line, with approximately 70% of their total area planned above the approximate lower limit of the high snowpack zone. ECA's for the watershed including proposed harvesting are summarized in the Watershed Report Card for future conditions. (Table 5.3.2)

Monitoring ECA levels in a watershed is generally aimed at minimizing the risk of damaging changes to streamflow hydrographs from the cumulative effects of forest harvesting. In community watersheds, maintaining water quality, quantity and the timing of flow are primary management objectives (FPCBC October 1996). According to the IWAP Guidebook, ECA values should not be a management target (FPCBC April 1999). However, evaluation of ECA levels may be used in combination with other factors to assess the impact of timber harvesting on stream channels. The implications of these estimated ECA values are discussed in conjunction with field results later in this report.

5.2 Reconnaissance Channel Assessments

Reconnaissance channel assessments were completed in the Corning Creek watershed on November 3 and 13, 1998; December 18, 1998; and July 13, 1999. Detailed field notes and selected site photographs are provided in Appendix G and H, respectively. Photodocumentation records for all photographs taken during the assessment are also provided in Appendix H. A total of 241 photographs were taken to document exceptional and typical conditions in the Corning Creek watershed. To minimize reproduction costs, a complete set of photographs has been provided to Federated under separate cover, for review upon request.

Results for each sub-basin are presented separately in the following sections. The intent of these discussions is to provide a summary and overview of channel conditions in the

watersheds. For more detailed descriptions of specific sites, refer to the field notes contained in Appendix G. Refer to watershed maps in Appendix E for inspection site locations, sub-basin delineations, reaches surveyed, block numbers and the locations of other features discussed.

5.2.1 Residual Sub-basin

The Residual sub-basin, by definition, consists of the lower, residual portions of the watershed left over once the other sub-basins in the watershed have been delineated. The Residual sub-basin is not a self-contained watershed and conditions in other sub-basins upstream can affect its channel stability. Conditions in the Residual sub-basin must therefore be considered in the context of the watershed as a whole.

The Residual sub-basin comprises the largest portion of the watershed and includes three of the seven mainstem reaches of Corning Creek. Major features within these reaches are the Corning Creek fan and the deeply incised valley associated with the lower mainstem above the fan. Most of the unstable terrain in the watershed is located on the steep valley walls found along the lower mainstem in this sub-basin.

The Corning Creek channel across the fan (Reach 1) was surveyed in detail on November 3, 1998. By definition, channels on alluvial fans are depositional, unconfined and usually have erodible banks. As a result, fans are among the most sensitive areas of any watershed and are generally good indicators of upstream change in sediment and flow regimes.

Reach 1 was found to be mostly stable and followed an established, relatively well incised channel (Photos 1 and 2). Large cedars (>60cm dbh) were noted growing on and out of the banks indicating long-term channel stability. Substrates were predominantly cobble and some bedload movement was apparent. Few fines were noted near the mouth of the creek.

Through much of the reach, the channel appeared deficient of large woody debris (LWD). Some selective cutting and removal of riparian trees had occurred on the adjacent private land, but not enough to substantially affect stream conditions. Instream LWD may have been buried by cobble deposition or mechanically cleared by local landowners at one time. Debris jams and instream LWD serve to check bedload movement in a channel, however excessive debris and/or large jams can also lead to localized deposition, bank erosion and channel avulsions on a fan. Instream LWD is often removed to prevent the latter, at the expense of bedload staging.

During the survey, the channel was dry (no surface flow) up to a point slightly downstream of the lowest water intake, near the top of the fan. This dewatering may be indicative of aggradation and bedload deposition in the lower gradient areas of Reach 1. In order to maintain channel capacity, channel aggradation is usually accompanied by increased bank scour. Evidence of localized bank scour was identified in some areas of Reach 1, but the banks remained generally stable. Thus, channel dewatering in Reach 1 may be mostly related to the typically high permeability of alluvial deposits used to form the fan. The WSC gauge for Corning Creek is located above the top of the fan in a bedrock-controlled canyon and is unaffected by this dewatering.

Two old, partially revegetated landslides were noted near the lower end of Reach 2 (Photos 3 and 4) (see EMRA S1, S2 and S3, Silvatech 1999). The landslides are indicated on the map provided in Appendix E. Although failures S1 and S2 were described as separate occurrences in the EMRA, the two are thought to be connected and indicative of a single large slope movement. Continued sediment contributions to the creek from the slides are likely to be minor. There is some potential for failure S1/2 to be reactivated through bank erosion along the toe of the slide. A private building was observed on the bench above the failure and may potentially be affected should the slope continue to regress. The other landslide (S3) is on a cleared slope and may be related to the construction of a private access road to the floodplain, near one of the licensed water intake sites. This slide is buffered from the mainstem creek by an area of brushed floodplain.

Further upstream in the sub-basin, the confluence of the east tributary and the mainstem was inspected to assess relative conditions in the two channels. The confluence forms the reach break between Reaches 2 and 3 on the mainstem. The east tributary was surveyed for approximately 250m and was found to be in a stable, natural condition. Some evidence of bank scour and bedload movement were identified; however, not more than would be anticipated in an undisturbed natural channel, especially given the recent flood history in the watershed.

Evidence of recently increased channel activity, such as gravel deposits, debris jams with cobble wedges and bank scour were observed along the mainstem in the vicinity of the confluence (Photos 5, 6 and 7). In some areas, aggradation was sufficient to cause channel dewatering for short sections. Downstream of the confluence conditions improved while upstream the conditions deteriorated. Frequent bedrock controls in the channel and along the banks provided some stability to the channel form.

During the helicopter reconnaissance, several slope failures were noted in Reach 3 of the Residual sub-basin. Increased sediment and debris loads identified in the mainstem channel above the confluence with the east tributary were likely related to materials input from these failures. The failures are indicated on the project map provided in Appendix E. The four slides on the right bank of the creek were inspected to assess conditions and likely causes, as part of a detailed channel survey on November 13, 1998. As discussed in the EMRA (Silvatech 1999), failures S4 and S5, one above the other, were likely caused by upslope road drainage problems directing concentrated surface flows onto an unconditioned slope (Photos 8 and 9). A scour track was visible from the bottom of the cutblock, down the full length of the slope to the creek below. A larger debris torrent was likely prevented by the presence of shallow bedrock, limiting scour at the lower end of the track, adjacent to the creek. The EMRA suggested these slides were high risk and high priority for restoration. This is reiterated in the recommendations of this report.

Slope failures S6 and S7 were also inspected as part of the ground survey. These two failures were found to be recently active, enlarged bank failures in relatively deep tills with a high content of fines (Photos 10 and 11). Failure S6 is visible on the 1994 airphotos, however, S7 is not, possibly due to the dense forest canopy. No evidence of upslope issues contributing to either failure was observed and the events were inferred to be natural. Recent activity at the failures may have been the result of toe/bank erosion during the significant discharge event in May 1997, recorded by WSC for

Corning Creek. The slides have likely contributed significant sediment and debris to the creek and continue to be a source of fine-grained sediments.

Although not inspected on the ground, failures S8 and S9 also appeared to be recently active enlarged bank failures, similar to S6 and S7 (Photo 12). Indications of both failures are visible on the 1994 aerial photography. The failures are inferred to be natural, although some harvesting occurred upslope. A forested buffer of relatively flat terrain remains between the cutblock and the top of the slope above the failures, reducing the likelihood of a connection. A detailed site inspection is otherwise required to ascertain possible causes of the failures.

5.2.2 Upper Sub-basin

Channels in the Upper sub-basin were inspected on July 13, 1999 and were found to be mostly stable. In general, stream power and bedload transport were reduced on the relatively flat gradients of the Adams Plateau. Reduced stream power meant that LWD played a less important function in channel stability. Future supplies of LWD have been affected by harvesting and the extensive area affected by historical wildfires in the sub-basin. In the areas inspected, forest recovery was well under way, although the dominant vegetation in many of the riparian areas was alder and willow. The thick, brushy, deciduous vegetation worked well to stabilize banks and floodplain areas, but did not contribute to instream LWD function.

Although not readily apparent in the channel sections, evidence of recent peak flow problems was observed at many road crossings. Road crossings frequently act as constrictions to flow under flood conditions and act as sensitive sites in high flow conditions. At Sites 4 and 12 along the mainstem channel, freshet flows in 1999 had washed over the road surface and eroded the road fillslope near the culvert outlets (Photos 13 and 14). At Site 4, the mainline road was no longer passable to vehicles as a result of the washout. Flow capacity of the 1200mm culvert at Site 4 had been reduced by a collapse in the roof of the culvert (Photo 15). The collapse likely resulted from inadequate cover being provided over the culvert during construction to distribute vehicular loads and/or timbers being placed in the backfill over the culvert. Recommended cover for a 1200mm culvert is 400mm. Cover may have also been reduced during subsequent regrading of the road surface.

Although sufficient water had ponded upstream of both of these crossings to allow overtopping of the road, significant sediment deposits were not observed at or above the culvert inlets. This suggests that sediment transfer was limited during freshet, and is a good indicator of channel stability upstream during a peak flow event.

Similar problems had occurred during the 1999 freshet at road crossings (Sites 3 and 13) on the main west tributary in the Upper sub-basin (Photos 16, 17 and 18). Once again, deposition above the culvert inlets was minimal indicating overall channel stability.

Discharge data for the Corning Creek gauge is not yet available for 1999 to ascertain the statistical significance of any spring 1999, discharge events. Unusually high snowpacks were recorded in the area during the 1998-99 winter season. Problems observed may be the result of, or a combination of; unusually high spring runoff, poorly designed road crossings and/or increased peak flows resulting from historically reduced forest cover in

the upper basin (i.e. forest fires and harvesting). As previously discussed, ECA levels in the Upper sub-basin are high.

At the lower end of the Upper sub-basin, the mainstem and west tributary drop steeply into the incised valley of the Residual sub-basin. These potentially critical channel sections were briefly inspected for channel stability and/or evidence of increased peak flow regimes. Both channels were dominated by bedrock controls (beds and banks) and appeared unaffected by any recent high flows (Photos 19 and 20). Steep, non-alluvial channels of this type are naturally resilient and/or insensitive to small changes in flow regimes. Along both channels, riparian areas were intact and provided for sustained inputs of LWD.

During the inspection of the Upper sub-basin, a diversion of surface drainage along a disused haul road was noted near Site 10 (Photos 21 and 22). The diverted flows eventually returned to a natural watercourse while still on the relatively flat plateau. Although partly self-armoured, the diverted flows will continue to scour the old road surface and generate fine sediments. Natural drainage should be restored in this area.

5.2.3 East Sub-basin

As discussed in Section 5.2.1, the east tributary of Corning Creek was surveyed for approximately 250m above its confluence with the mainstem. The channel was found to be in a stable, natural condition, with some evidence of bank scour and bedload movement. No slope failures in the sub-basin were observed during the helicopter overflight, or the airphoto assessment. Riparian areas appear to be intact from the confluence upstream to Sites 5 and 6.

The road crossing and channel in the vicinity of Site 5 was found to be in good condition, although some deposition was noted upstream of the 1200mm culvert. Ditchwater was being directed into the creek above the culvert, potentially increasing the turbidity of the creek during rainstorms and/or heavy traffic.

The culvert (1200mm) at Site 6 is probably undersized, as was evidenced by channel aggradation upstream of the crossing (Photo 23). Stored sediments are being re-vegetated with shrubs. Aggradation may eventually further reduce the capacity of the culvert, compounding the situation. The culvert should be removed or replaced with a larger size, or failsafed through road deactivation.

5.2.4 Ponds Sub-basin and Freeman Brook

On December 18, 1998, an inspection of Freeman Brook and associated storage ponds was made in the company of Mr. Jim Cooperman (local resident and water licensee). Surface flow was only present in the lower one third of the creek. At least one water intake (shallow well) was set up where the surface flows emerged (Photo 24). The lower surveyed portion of the creek was well vegetated with mature trees; however, there is some potential for the creek to leave its present channel and flow down a nearby access road paralleling the creek.

The upper portions of Freeman Brook were dry at the time of the survey and the natural channel became less distinct. Parts of the channel may have been obscured by the

construction of a steep cleared access leading up to the storage ponds. The access may have been created in order to bury waterlines from the ponds. Cleared areas were revegetating with willows and cottonwoods. Some indication of occasional concentrated surface flows was evidenced by a scoured channel following the access route (Photo 25). The scoured channel may have been caused by a burst waterline or overflows from the storage ponds.

Immediately at the top of the access trail was the first of two storage ponds (Photo 26). A section of corrugated steel culvert was provided as an overflow from the ponds in the direction of Freeman Brook (Photo 27). The main purpose of the culvert appeared to be the protection of the berm from erosion in the event of overflows, preventing a rapid failure of the berm. Regular releases of water from the ponds into Freeman Brook were not apparent. Other than this overflow, no surface water connection was found to exist from the ponds into lower Freeman Brook.

A second pond had been constructed immediately to the west of the first pond. The total area of the two ponds combined was estimated at 1ha and the ponds are sufficiently large to be visible on 1:15,000 aerial photography. At the west end of the ponds, a well-defined natural draw ran towards the mainstem of Corning Creek (Photos 28 and 29). No evidence of recent surface flows was visible in the draw and no outlet or overflow from the ponds had been provided in this direction. The draw eventually led to a very steep, bedrock-controlled gully dropping sharply into the main Corning Creek valley several hundred metres below.

The existence of this well-defined draw leading toward Corning Creek, and the lack of a defined channel in upper Freeman Brook, has led to the following inference; prior to the construction of the storage ponds, surface flows above this point ran into Corning Creek. Construction of the ponds and the access trail has made assessment difficult. Historically, water may have flowed in both directions. Beavers may have played a role in determining which direction the tributary flowed. At this point in time, surface flows are released in the direction of Freeman Brook only during extreme high water conditions when the ponds are over-topped. Some flows likely seep into both drainages from the unlined ponds. The ponds may help to sustain flows in lower Freeman Brook through the summer through infiltration. Due to the steepness of the terrain, the sudden release of water in either direction could cause significant sediment generation and possible slope instability.

Based on the results and inferences of the field inspections, the Ponds Sub-basin was delineated to identify the source area above the man-made storage ponds and the water diversion site at the top end of Freeman Brook.

5.3 Watershed Report Card

Watershed report cards for Corning Creek under existing and future conditions are provided in the following tables.

Table 5.3.1 Watershed Report Card for Corning Creek - Existing Conditions (1999)

	Units	Upper	East	Ponds	Residual	Total Watershed
Percent harvested, corrected for ECA.	ha	373.6	132.3	51.7	222.2	779.8
	%	37.4	22.4	19.1	18.1	25.2
ECA above H60 line.	ha	373.6	130.1	12.8	46.6	563.1
	%	37.4	22.1	4.7	3.8	18.2
ECA below H60 line.	ha	0.0	2.2	38.9	175.6	216.7
	%	0.0	0.3	14.4	14.3	7.0
Total road density	km/km^2	2.53	2.00	2.55	2.30	2.34
Length of road as high sediment source.	km	0.5	0.0	0.0	6.9	7.4
Total number of landslides	-	0	0	0	9	9
Length of Road on potentially unstable slopes.	km	0	0	0	3.8	3.8
Number of stream crossings (including trails).	-	26	6	6	5	42
Length of stream with disturbed riparian forest.	km	16.5	4.3	3.2	1.5	25.5
	%	71	52	78	11	52
Length of disturbed stream channel.	km					
	%					

Table 5.3.2 Watershed Report Card for Corning Creek - Future Conditions (2004)

	Units	Upper	East	Ponds	Residual	Total Watershed
Percent harvested, corrected for ECA.	ha	267.2	114.2	51.7	275.9	709.0
	%	26.7	19.4	19.1	22.4	22.9
ECA above H60 line.	ha	267.2	112.0	12.8	83.9	475.9
	%	26.7	19.0	4.7	6.8	15.4
ECA below H60 line.	ha	0.0	2.2	38.9	192.0	233.1
	%	0.0	0.3	14.4	15.6	7.5
Total road density	km/km^2	2.57	2.09	2.55	2.55	2.47
Length of road as high sediment source.	km	N/A	N/A	N/A	N/A	N/A
Total number of landslides	-	N/A	N/A	N/A	N/A	N/A
Length of Road on potentially unstable slopes.	km	0.0	0	0	4.8	4.8
Number of stream crossings (including trails).	-	26	6	6	6	43
Length of stream with disturbed riparian forest.	km	17.1	4.3	3.2	1.6	26.2
	%	74	52	77	12	54
Length of disturbed stream channel.	Km	N/A	N/A	N/A	N/A	N/A
	%					

Note: Future Conditions include all proposed cutblocks.

6.0 SUMMARY AND RECOMMENDATIONS

The following sections integrate and summarize the hazards identified through the various phases of this project and provide discussion on their relative influence on resource management. Assessed hazards focus on potential changes to peak flow regimes, sediment generation and delivery, channel conditions and riparian vegetation. Recommendations are presented with regards to opportunities for watershed restoration and the management of future forest harvesting in the Corning Creek watershed. These recommendations should be discussed by the roundtable committee following the presentation of this report.

Careful planning and open communication is essential to avoid or resolve conflicts in the development of any or all of the resources in the Corning Creek watershed. Forest development activities, including harvesting, road building, access management, forest fire protection, the application of fertilizers and pesticides, can all potentially affect the viability of water resources in Corning Creek. In addition, livestock ranging and recreational activities may also have downstream effects. Resource use interactions must be carefully managed to ensure the sustainability of each resource and the protection of terrestrial and aquatic habitat.

6.1 Watershed Hazard Ratings

Based on the results of our office and field assessments, the following table summarizes qualitative hazard ratings developed for the Corning Creek watershed:

East sub-basin is relatively small with most of area on a plateau above the H60 and is narrow (short travel distance to creek)

Table 6.1.1 Watershed Hazard Ratings

Sub-basin	Peak Flow	Sediment	Channel	Riparian
Upper	H	M	L	M
East	M	L	L	L
Ponds	L	L	L	L
Residual	M	H	M	L
Total Watershed	M	M	M	L

∴ The sub-basin is sensitive and may be a high peak flow hazard

@ 25% ECA for 3.0 km² W/S not sure that this is correct → H ? (although the riparian is mostly intact

71% disturbed ⇒ H ?

6.1.1 Upper Sub-basin

Peak flow hazards were rated as high in the Upper sub-basin due to high ECA levels and recent evidence of culvert failures at several road crossings in the sub-basin. Most of the sub-basin is in the high snowpack zone of the Adams Plateau and above the H60 line for the watershed. If ECA levels were adjusted for elevation bands the resultant ECA would be extreme. Although problems were apparent at stream crossings, relatively low gradient channels reduced the potential for impacts to streambanks and the transfer of sediment. For these reasons, and the relatively good condition of the channels observed in the field, the channel hazard was rated as low. Channels in the upper areas may have adjusted to increased flows given the lengthy fire history in the area. The frequency of stream crossings and the extent of reduced riparian buffers in the Upper sub-basin increases the risk of sediment entering channels. As a result, both the sediment and riparian hazards were assigned moderate ratings.

6.1.2 East and Ponds Sub-basin

Hazards with regards to the four areas of discussion were mostly assigned low ratings in the East and Ponds sub-basins. A moderate rating for peak flow hazard was given to the East sub-basin due to relatively high ECA levels created by historic fires and harvesting. Once again, most of the sub-basin is in the high snowpack zone and above the H60 line. Although a few recent cutblocks exist, many of the openings in both sub-basins are approaching full recovery. Field surveys did not indicate any significant channel disturbances. Similarly, many of the disturbed riparian areas were found to be through openings approaching full recovery and were generally limited to small, headwater streams. Sediment transfer is likely to be reduced in the relatively small, low gradient channels on the plateau.

6.1.3 Residual Sub-basin

The Residual sub-basin is not a true watershed; therefore assessments involving ECA levels can be misleading. The peak flow hazard for the Residual sub-basin was given a moderate rating mostly due to elevated harvesting levels in the two upper sub-basins. Altered flow regimes, especially increased peak flows, are more likely to manifest in the mainstem channel through the Residual sub-basin as a result of harvesting in sub-basins upstream. Peak flow hazards in the Residual sub-basin were assigned a moderate rating. Higher stream gradients and closely connected hillslopes make the mainstem channel through the Residual sub-basin more sensitive to increased flows. Several bank failures identified in the field provided good examples of what may result from accelerated bank erosion. For this reason, and the frequency of landslides in the Residual basin, a high risk rating for sediment was assigned. Most of the unstable terrain and all of the roads on unstable terrain were located within this sub-basin. Almost all of the road length designated as a high sediment source was also identified in the Residual sub-basin.

Channel conditions through the Residual sub-basin were generally stable in the reaches inspected; however, some problem areas were noted. Increased slide activity, some natural and some potentially development-related, had caused channel aggradation and an accumulation of large sediment wedges in the mainstem channel above its confluence with the east fork. Bank failures through this section may have been the result of recent or accelerated bank erosion. Frequent bedrock controls in the channel serve to prevent extensive or rapid channel readjustment. The Residual sub-basin also includes the Corning Creek fan. Fans are typically more sensitive to changing flow and sediment regimes. Based on the survey results and anticipated sensitivities, channel hazards in the Residual sub-basin were assigned a moderate rating.

With the exception of some private land clearing near the mouth of Corning Creek, riparian vegetation communities remain essentially intact along the mainstem through the Residual sub-basin. This increases the resilience of the mainstem channel with respect to changing flow regimes.

6.1.4 Total Watershed

The assessment of the Corning Creek watershed as a whole combines the results and issues identified in each of the sub-basins. The peak flow hazard was assigned a moderate rating for the watershed based on the high ECA levels in the upper basin and the relatively good condition of most of the channels. A relatively recent extreme discharge event had occurred in the watershed (May 1997) of sufficient size to be considered a channel-forming event in the lower watershed. Had channel change been more extensive in the lower mainstem or the fan, a higher peak flow hazard rating would have likely ensued. Field evidence of flows exceeding culverts in 1999 was limited to the Upper sub-basin.

Sediment hazards were rated as moderate in the watershed, mostly due to landslides, bank failures and fine-grained soils along the mainstem in the Residual sub-basin and unstable road crossings in the upper watershed. The consequence of increased suspended sediment loading in Corning Creek is elevated by the designation of the watershed as a community water source.

Although channel conditions were generally stable throughout the watershed, some areas of concern were identified, especially in the lower mainstem below the bank failures. Continued sedimentation and/or the catastrophic release of stored sediment from behind a debris jam may ultimately increase the length of disturbed channel. Elsewhere, low gradients on the upper plateau and frequent bedrock controls through steeper sections downstream helped to desensitize those channels' areas. Channels in the Upper sub-basin may have already adjusted to increased flows due to the long history of fires. Channels have recovered along with the riparian forests.

The extent of disturbed riparian vegetation along channels appears high (54%) in the Corning Creek watershed, over 70% in the Upper sub-basin. Some of these disturbed areas are related to historical burns in the watershed and no allowance for recovery of the forests has been applied. In the flatter sections of the upper plateau, historical reductions in riparian forests do not appear to have had a significant effect on channel stability. Although conifer densities have likely decreased, native moisture seeking, high elevation shrubs such as rhododendron, false azalea and willow were present in dense stands. This likely mimics what may be expected under natural conditions elsewhere on the Adams Plateau.

In the lower mainstem (Reaches 1, 2 and 3) where riparian forests are likely more essential to channel stability, forests adjacent to the stream have been left mostly intact. Riparian vegetation along the mainstem will help to reduce sediment transfer, protect stream bank integrity, slow overbank flows, provide channel structure and increase energy dissipation during high flow conditions. Intact riparian areas are essential in geomorphically active areas such as lower Corning Creek and to date, they have been maintained. For these reasons, the overall riparian hazard has been given a low rating for the Corning creek watershed.

6.2 Restoration Recommendations

Restoration in the Corning Creek watershed should begin with controlling sediment inputs related to hillslopes and roads. The three landslides near the lower end of Corning Creek (S1, S2, and S3) are situated on or adjacent to private land and are not likely related to forest development. Most of the other existing slides upstream (S5 through S9) are extremely difficult to access and this presents a formidable obstacle to landslide rehabilitation. An exception is S4, which initiates at an old skid trail/ fire guard. The skid trail should be deactivated to prevent further concentration of surface drainage and additional downslope failures.

The sediment source survey (Silvatech 1999) indicated that roads upslope of slides S4 and S5 were potentially contributing to problems downslope and were given a high priority for restoration. This is reiterated in this report to prevent further failures on the steep hillside above Corning Creek. Existing failures (natural and development related) have already affected creek conditions in Reach 3. Upslope road rehabilitation, including upgrading of the existing mainline, should be aimed at restoring natural, dispersed drainage patterns above the steep, sensitive terrain along Reaches 2 and 3.

Channel disturbance identified in Reach 3 included aggradation and excessive sediment storage. These types of disturbance are widespread along the channel making restoration difficult. Access to the channel also is difficult, if not impossible, in this steep and incised portion of the creek. If sediment inputs to the channel are controlled, the creek will eventually return to a stable condition. Fish habitat has been affected in this area through the infilling of pools, the cementing of substrates and the dewatering of channel sections at low flows, potentially restricting seasonal passage. Fish use in the area is unknown but likely limited to a few resident rainbow trout. For all of the above reasons, instream channel or fish habitat restoration works are not recommended at this time.

For reasons previously discussed, a low riparian hazard rating has been assigned to the Corning Creek watershed. No riparian restoration programs are recommended at this time. Additional planting of conifers may be suggested in portions of the Upper sub-basin where stand densities are low, and this may include riparian areas. This suggestion stems as much from the need for hydrologic recovery in the Upper basin and site production as it does from the standpoint of channel stability.

Numerous culvert failures were identified through the course of these assessments, predominantly in the Upper sub-basin. These sites and other specific restoration recommendations are summarized in Table 6.2.1. An indication of work sequence priority is provided. Priority ratings adopted for this project are similar to those used in resource road rehabilitation (Moore 1994) and are summarized in Table 6.2.1.

Table 6.2.1 Summary of Restoration Opportunities

Sub-basin	Reach	Site	Problem	Recommendations	Priority
Residual	2	0	Surface flows diverted by road grade.	Provide additional cross drainage on disused road.	M

Sub-basin	Reach	Site	Problem	Recommendations	Priority
Residual	3	-	Surface flows intercepted and diverted by old skid trail/fire guard along bottom of block have caused surface scouring and failure S4 (Photo 8).	Deactivate and/or re-contour skid trail to prevent concentration of surface drainage.	H
Residual	3	-	Inadequate road drainage has caused localized scour and slope stability problems (S4, S5) below roads on steep valley walls along right bank of creek (Photos 8, 9).	Conduct detailed assessment of mainline and spurs throughout the Residual sub-basin. Prepare prescriptions and deactivate/improve roads where necessary.	H
Upper	trib.	3	Culvert capacity has been recently exceeded causing scour of road surface. (Photo 16).	Increase culvert capacity or failsafe crossing by armouring road.	M
Upper	trib.	4	Culvert is damaged and capacity has been recently exceeded causing washout and scour of road surface. Inadequate cover over culvert to support heavy traffic (Photo 13).	Replace culvert with smaller twin culverts to provide more capacity and increase cover depth.	M
East	trib.	5	Ditchflows directed into creek.	Direct ditchwater into flat vegetated area to promote settling and filtering of fine sediment.	L
East	trib.	6	Undersized culvert is causing aggradation in channel upstream of crossing. Partially plugged inlet.	Increase crossing capacity through deactivation and/or replacement of the culvert.	L
Upper	trib.	9	Undersized culvert has caused overtopping of road. Partially plugged at outlet.	Increase crossing capacity through deactivation and/or replacement of the culvert.	L
Upper	trib.	12	Culvert capacity has been recently exceeded causing scour of road surface and fillslope. (Photo 14).	Increase culvert capacity or failsafe crossing by armouring road.	M
Upper	trib.	13	Crossing capacity has been recently exceeded causing scour of road surface. (Photos 17, 18).	Increase culvert capacity or failsafe crossing by armouring road.	M
Upper	trib.	10	Surface flows diverted by old unused branch road for considerable distance. Intercepted flows directed toward unnatural channel (Photos 21, 22).	Provide adequate cross drainage along branch road and restore natural drainage patterns.	M

Table 6.2.2 Priority Ratings used in Table 6.2.1 (after Moore 1994)

Priority Class	Risk Based Criteria (any or all of the following)
H	• corrective action is required immediately. • high potential to initiate landslides or mass wasting. • actively producing sediment with direct delivery to fisheries streams and/or streams used for domestic water supply. • potential threat to human life, private property, public utilities, or travel corridors. • conditions are deteriorating or tending toward destabilization. • rehabilitation can be effectively accomplished.
M	• corrective action is not required immediately but should be completed prior to next high water season. • moderate to low potential to initiate landslides or mass wasting. • actively producing sediment with direct delivery to non-fish-bearing streams and/or streams not used for domestic water supply. • actively producing sediment with indirect delivery to streams. • low potential threat to human life, private property, public utilities, or travel corridors. • conditions may deteriorate or stabilize with time (uncertain). • rehabilitation can be effectively accomplished.
L	• corrective action is not required but should be completed if crews or equipment are available in the vicinity. • low potential to initiate landslides or mass wasting. • potential to, but not actively producing sediment with direct delivery to surface water. • conditions are tending toward stabilization. • rehabilitation may or may not wholly succeed.

6.3 Future Harvesting Recommendations

As previously discussed, Corning Creek was designated as a 'Community Watershed' during the course of this project. The Community Watershed Guidebook (CWG) (FPCBC October 1996) contains guidelines which apply to harvest planning within a community watershed. Best management practices with respect to harvest scheduling, road building, cutblock size and riparian management are discussed therein. Evaluation of proposed future harvesting in this report was based on the Federated Co-operatives Ltd.'s Forest Development Plan for Forest Licence A18670 for the period January 1, 1999 to December 31, 2003 (Mapsheets 82L093 and 82M003).

The potential for peak flow alteration was rated as moderate for the Corning Creek watershed as a whole, based on current channel conditions and an overall ECA of 25%. According to the CWG, target conditions with regards to rate of cut suggest that harvest levels should not be in excess of moderate hazard levels of the peak flow index as calculated by the (outdated) watershed assessment procedure. ECA levels were likely in the same range (~25%) during the 1997 discharge event and little evidence of increased or unusual channel activity was observed. For this reason, it is recommended that a total ECA of 25% be targeted for the watershed into the future. This limit may be revised following a review of channel conditions at a future date or as part of a long-term

development plan. Currently proposed harvesting in the watershed and predicted recovery would result in an ECA of 22.9% by the year 2004.

For the Upper sub-basin, which lies entirely within the high snowpack zone, the ECA was calculated to be 37.4%. Historically burned areas and older cutblocks contribute significantly to the high rating. Evidence of extreme discharge and culvert over-topping was identified in the sub-basin. This high level of disturbance triggered a high hazard for the potential alteration of peak flows. According to the CWG, the maximum recommended ECA in any drainage basin larger than 250 ha is 30%. Due to the age of some of the disturbances, many openings are recovering in the sub-basin. Projected recovery rates will reduce the ECA levels in the sub-basin to 26.7% by the year 2004, including currently proposed harvesting. Additional fieldwork may be undertaken to refine forest cover data and hydrologic recovery in the sub-basin. It is recommended that ECA levels in the upper watershed be managed to less than 30% into the future. In general, although evidence of potential peak flow problems was not identified elsewhere in this assessment, other sub-basins in the watershed should be similarly managed.

Sediment inputs into Corning Creek have occurred as a result of harvesting activities and poor road drainage on or above sensitive slopes along the west side of the main valley. A target condition listed by the CWG suggests no road-related landslides that directly impact any stream. Proposed cutblocks 867-1, -2 and -3 have been located on terrain identified as potentially unstable in this area. According to the Timber Harvesting Practices Regulations (Section 7(3)), clearcutting is not permitted in an area with a moderate likelihood of landslides and a high risk of sediment delivery to a stream, unless the detailed terrain stability field assessment documents that the assessor has reasonable grounds to believe that clearcutting the area will not significantly increase the risk of landslide (FPCBC 1998b). Short sections of new road construction have been proposed to access these blocks. Detailed terrain assessments should be conducted in the vicinity of these blocks and proposed roads by qualified professionals prior to any development activities. Proposed blocks 867-4 and -5, and 849-1 are situated on less steep, plateau areas adjacent to the watershed divide. If natural drainage patterns are maintained in these blocks, it is unlikely that landslides or significant sediment production will result.

Although existing riparian conditions have been assigned a low hazard rating, the recent community watershed designation suggests greater restrictions around streams. Stream classes S5 and S6 are immediately upgraded to S3 and S4. Goals of riparian management include minimizing forest and range use impacts on water quality by providing a vegetated buffer and filter between those activities and streams. In addition, stream channel stability is enhanced by protecting streambanks and streambank vegetation, and by ensuring that a long term supply of LWD is available for stream channel processes.

Proposed cutblock 867-1 straddles a major tributary of Corning Creek draining the Upper sub-basin. Proposed cutblock 867-3 includes a small mapped stream that may or may not exist. In addition to the other concerns identified in these cutblocks, harvesting plans and riparian management prescriptions should be adjusted to reflect Operational Planning Regulations (Part 8, Division 1, Sections 59 and 60) and the goals suggested by the Riparian Management Area and Community Watershed Guidebooks (FPCBC 1998a).

To monitor the potential effects of future forest development and assess the recovery of problem areas identified within the watershed, an updated assessment is recommended in the year 2004. This assessment should include a review of all identified sediment sources and a reconnaissance of channel conditions in known disturbed areas as well as on the lower fan. A review of ECA levels should also be conducted for each of the sub-basins and the watershed as a whole, including any improved silviculture information. Projected rates of cut according to long-term development plans may be re-evaluated at that time.

The following list summarizes the recommendations for future harvesting as discussed by this report:

1. Manage ECA's in the watershed as a whole below a maximum of 25%.

2. Manage ECA's in all sub-basins below a maximum of 30%, with particular emphasis placed on reducing harvest levels in the Upper sub-basin.

3. Review plans to ensure that any future harvesting is consistent with Operational Planning Regulations and Timber Harvesting Practices Regulations for community watersheds (FPCBC 1998a,b). This would include:

   a) Conducting detailed terrain stability assessments in the vicinity of proposed cutblocks 867-1, -2 and -3; and,

   b) Reassessing harvest plans for cutblocks 867-1 and 867-3 and, where appropriate, upgrading riparian management prescriptions.

4. Conduct a reassessment of watershed conditions, including channels, sediment sources and ECA's, by the year 2004.

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8.0 LIST OF APPENDICES

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APPENDIX A

Minutes of Corning Creek Roundtable Meeting
December 17, 1998

memorandum

to: **Pierre Rossouw, Ministry of Forests, Salmon Arm**

from: **Karin Janzen, Silvatech Consulting Ltd.**

date: **January 4, 1999**

re: **Corning Creek IWAP - Minutes from Roundtable Meeting**

Meeting was convened at 1:30 p.m. on Thursday, December 17, 1998, at the offices of the Ministry of Forests, Salmon Arm Forest District, 790 16th Street NE, Salmon Arm, BC.

Present were: Pierre Rossouw, Ministry of Forests; Roger Wysocki, Ministry of Environment, Lands and Parks; Jeff Lipsett, Federated Co-operatives Ltd.; Rob Udy, High Country Forestry Consulting Ltd.; George Zorn, Ministry of Forests; Jim Cooperman, landowner and water licencee representative; Alan Bates, Silvatech Consulting Ltd.; and Jeremy Appt, Silvatech Consulting Ltd..

Welcome and purpose of the meeting:

Rossouw opened the meeting by detailing the differences between the old IWAP format, which was chiefly a mapping exercise and proved indecisive in its characterization of the subject watershed, and a newer draft procedure yet to be adopted. In the meantime, an interim procedure was developed by the Ministry of Forests, Kamloops Region, in response to the need for field assessments. The new procedure is based on hydrological study of the watershed and it has been adopted for use in this project.

Rossouw went on to comment on the absence of representatives from the Adams Lake Indian Band and the Little Shuswap Indian Band who may have an interest in the Corning Creek watershed and recommended that they be sent copies of the minutes of this meeting and kept informed on the progress of this project and any subsequent recommendations.

Review of IWAP procedure:

Rossouw outlined the agenda for the balance of the roundtable meeting, noting that the subjects to be touched on would include a delineation of the watershed study area, a review of the historical background of the watershed, raising the concerns and issues of both the public and government agencies with the project hydrologist so these could be addressed in the course of his assessments, and setting a timeline for completion of the project's phases. Following today's meeting and the subsequent field work, a draft final report would be prepared by the hydrologist and presented to a second roundtable meeting for review. Ideally this second meeting would culminate in recommendations for the watershed which would be incorporated into the final project report.

Lipsett added that the resulting report and recommendations would be used by the forest licencees operating in the watershed in planning their development proposals.

At this point, Lipsett noted that Interfor hauls on the Forest Service Road within the watershed and while not directly affected by this study, should be kept informed.

A discussion ensued regarding the levels of digital terrain mapping required within this watershed. Udy pointed out that as there is only a small portion of inoperable land within the watershed, a decision had already been made that Level C terrain mapping would be carried out (excepting private land). It was explained that Level C mapping is a detailed, watershed-wide exercise as opposed to the reconnaissance-level mapping represented by Levels D and E and the highly-detailed, locally-focused studies represented by Levels B and A.

For the benefit of the group, each participant outlined his experience with the IWAP process.

Watershed overview:

Rossouw opened this portion of the discussion by pointing out that while not much funding has been available for studies in the Corning Creek watershed in recent years, a considerable amount of work has been done this past year.

Udy detailed the work currently underway in the watershed as being an Erosion and Mass Wasting Risk Assessment (EMRA) (where road and hillslope stability is assessed in terms of potential landslides and related impacts); the IWAP which is the subject of this meeting; and Terrain Stability Level C Mapping (where unstable terrain is assessed for its potential for sediment delivery). With respect to the terrain mapping, it was pointed out that the field assessments have been completed and all that remains for completion of this project is the final mapping. Completion is expected by early March. Draft polygons on photography will be used in the interim.

Rossouw questioned whether an Access Management Plan was in the works for this year. Udy responded that it was not in the plans at this time. Lipsett noted, for information purposes, that the studies currently underway were being done to ultimately develop an Access Management Plan for the watershed.

Wysocki noted that there is a pending application for designation of the Corning Creek area as a community watershed. He also stated that fish-related issues were not a concern at this time in the watershed. Cooperman added that, during a visit with MOE personnel to the area, fish had been sighted in the creek

Rossouw asked for an update on the status of the current application for Community Watershed designation for the Corning Creek area. Cooperman advised that at this time the application appeared to be stalled. He noted that the field checking of the inlets for the three major groups of water licence holders had been done with MELP representatives and that the holdup appeared to be connected with concerns expressed by the Department of Health.

Wysocki explained to the group that the only ramification of Community Watershed status being conferred on the Corning Creek watershed would be its implication on future forest management practices.

Zorn asked how many water licences were held on the Corning Creek system, to which Cooperman responded that he felt there were three major groups of licencees, representing possibly 20 to 30 households; these groups being known as the Simpson group, Carter group and McIntrye group.

At this point in the discussions the question arose as to whether or not Freeman Brook was tributary to Corning Creek. Cooperman maintained that it was and that there were approximately eight water licences on Freeman Brook. Wysocki felt that the matter should be looked into more thoroughly and that if Freeman Brook were, in fact, a tributary to Corning Creek it must be included in the IWAP. Bates said that he would have to examine the area to make that determination. Udy asked if this would require a boundary change for the study area; while Rossouw questioned whether Freeman Brook should be designated a sub-basin for the purposes of the assessments. Bates responded that a boundary change would definitely be necessary and that Freeman Brook, as a second-order stream, would have to be dealt

with as a separate sub-basin. Cooperman affirmed that Freeman Brook, to the best of his knowledge, has always had a history of forking and flowing in two directions, one of which joins Corning Creek. He further stated that there is a long-ago history of logging in the area and that indications point to the existence of a logging flume on Freeman Brook at one time. In response to a question from Lipsett, Cooperman advised that the licencees on Freeman Brook are represented by the Community Watershed application.

Lipsett confirmed that there was a long history of logging in the Corning Creek watershed with activity in the lower blocks commencing in the late 1980's. Bates added that records indicated some logging activity in the upper areas of the watershed in 1958 - 60 and that a portion of that area was burned over in 1960. He commented that the trees were coming back but had not reached a full recovery height. Rossouw stated that regen information for the area had not been updated in some time. Udy suggested that Silvatech measure regrowth to incorporate current data into the study, to which Bates suggested that stocking density and rate of regrowth should also be checked.

Rossouw indicated that there is some mining exploration activity taking place in the watershed and Lipsett confirmed that there is quite a bit of range use throughout the watershed. Rossouw pointed out that the Hydro line running through the watershed posed some issues and Bates advised that powerlines would be included in ECA calculations. Cooperman stated that a program of spraying had been proposed for the right-of-way, but action by residents had stopped this procedure.

Rossouw questioned the issue of mass movement within the watershed. Appt responded that early indications were that there was only one slide found that could be directly related to the road network. Bates said that he had found some enlarged bank failures through some portions of the watershed, but whether these were the result of fine-grained materials or simply a lot of rainfall could not be quickly determined. Otherwise, mainly natural levels of bank erosion were found in preliminary investigations. Bates felt that the one slide referred to by Appt was probably a minimum of 20 years old and still active and should be dealt with in the near future. This slide could be directly traced to a road drainage on the forest service road above the failure.

Zorn asked Bates how the creek would be classified. He replied that the creek could be broken down into three sections: the fan, a steep mid-section, and a relatively flat plateau at the upper end. He also pointed out that the H60 line had been plotted on the map although it is not required in the updated IWAP procedures. Harvesting above this line is considered to be in a higher snowpack zone which is more likely to be actively melting during flow peaks. Zorn further asked if anything about the watershed could be determined from conditions found at the fan. Bates said that preliminary indications were that the fan was likely post-glacial and relatively stable.

Discussion at this point turned to the purpose of the IWAP with Rossouw pointing out that determining threats to water quality (sediment) and private property (landslides, flooding) were the greatest concerns in assessing the watershed at this level.

Cooperman noted that, to the best of his knowledge, threats to households located near the creek from flooding and/or bank erosion were non-existent. Bates reiterated that the fan was stable. Appt noted that it appeared that 99% of roads in the watershed were built on stable ground and had been developed above any unstable terrain.

The issue of water quality was examined and Cooperman noted that during the 1980's, approximately 10 years ago, the water quality deteriorated very noticeably for a period of a year or two, then gradually improved. In response to a question, he said that this had happened after logging activity in the watershed.

Wysocki questioned whether more harvesting could take place in the watershed without increasing the potential for landslide and sediment problems. Bates responded that more problems are created by road construction related to logging than the actual logging activities. Wysocki also noted the need to

determine ECA's (Equivalent Clearcut Areas) to which Bates responded that, in his opinion, determination of ECA's may not prove to be a major factor in the assessment of the Corning Creek watershed as there did not appear to be a lot evidence of peak flow problems nor had residents and water users identified flooding as a concern. He restated his opinion that roads cause more problems and that the only solution was to not build them or, at the very least, to upgrade and maintain them.

Rossouw pointed out that range and wildlife issues should be addressed in the hydrologist's report. Wysocki noted that he could (and would) provide some input on this matter. Zorn questioned whether input from a geoscientist was necessary to the study. Bates responded that the objective of terrain mapping was to provide that type of input. Udy reminded the group that terrain mapping was essentially complete for the study area but had just not yet been put into digital format. Once again, Rossouw raised the issue of input from the Indian Bands on any concerns they may have and requested that this be dealt with in the IWAP report.

Bates questioned whether he should comment in his report on specific harvesting proposed in the watershed. Lipsett stated that no approval had yet been given for further harvesting and that blocks proposed were shown on the current Forest Development Plan. He (Lipsett) went on to say that comments could be made regarding the proposed blocks as they stand.

Establish Points of Interest and Sub-basin Delineation:

For the purposes of this first roundtable meeting, Rossouw pointed out that a classic watershed delineation had been suggested; that is, from the area covered would include the point of interest where the creek meets the lake and take in the entire watershed. He noted that Corning Creek is a relatively small watershed.

Bates pointed out that initially the watershed was divided into four sub-basins but with the inclusion of the Freeman Brook area, a fifth would be added to the study. The purpose of dividing a watershed into sub-basins, he said, was to facilitate focusing future works on a smaller scale. Udy commented that he did not like to see a watershed divided into too many sub-basins as this sometimes had the opposite affect and the focus of a study could be lost. After some further discussion it was proposed that the proposed North and West sub-basins could be consolidated and referenced as the North sub-basin, leaving the so-called East sub-basin, the newly designated Freeman sub-basin, and the Residual sub-basin.

It was decided that the point of interest would be the mouth (lake), but Bates indicated he would include a review of impacts at the main water intake and the Freeman intake.

Timelines:

Discussion centred around the fact that further field assessment was likely not possible until next spring and since the Freeman Brook issue had not come to light until today, ideally the project would not conclude until June or July. Udy advised that the current contract stipulated March 15, 1999 as the completion date. Lipsett noted that if the project were to go past that time, there could be funding issues. Bates pointed out that his report could be written within the current scheduled time with a disclaimer to the effect that not all field assessments had been concluded. In taking this course of action, Lipsett noted that the area could then be revisited at some later date to finalize the conclusions and recommendations.

Wysocki suggested that it would be to everyone's advantage to have the draft report available for review at least two to four weeks before the final meeting. Udy suggested that if the draft report was ready for review by March 1, 1999, then the final meeting could be held somewhere about March 22 - 26, 1999 and a final report possibly complete at the fiscal year-end. Silvatech will be responsible for calling the final meeting.

The meeting concluded at 3:15 p.m. a few final notes to the hydrologist. Rossouw advised that the Department of Fisheries' representative did not attend the meeting because it was felt that there were few fish-related issues. Bates added that he had been playing telephone tag with Bob Harding of DFO and that he would discuss any issues he (Harding) might have with Corning Creek. It was recommended that Bob Costerton of MOE in Kamloops be contacted as he may have snow pack information.

Distribution: Pierre Rossouw, MOF
Roger Wysocki, MELP
Jeff Lipsett, Federated
Rob Udy, High Country
George Zorn, MOF
Jim Cooperman
Alan Bates, Silvatech
Jeremy Appt, Silvatech
Dave Nordquist, Adams Lake Indian Band
Stuart Adamson, Little Shuswap Indian Band

APPENDIX B

Water Survey of Canada - Corning Creek (09LE077)
Gauging Records and Analysis

FREQUENCY ANALYSIS - LOG PEARSON TYPE III DISTRIBUTION
09LE077 Corning (Lee) Creek

SAMPLE STATISTICS

	MEAN	S.D.	C.V.	C.S.	C.K.
X SERIES	5.584	1.795	.322	.178	2.417
LN X SERIES	1.669	.336	.201	-.233	2.710

X(MIN)= 3.050
X(MAX)= 8.230
LOWER OUTLIER LIMIT OF X= 2.497

TOTAL SAMPLE SIZE= 15
NO. OF LOW OUTLIERS= 0
NO. OF ZERO FLOWS= 0

SOLUTION OBTAINED VIA MOMENTS

DISTRIBUTION IS UPPER BOUNDED AT M= 94.94
LP3 PARAMETERS: A= -.3905E-01 B= 73.87 LOG(M)= 4.553
M = 94.94

FLOOD FREQUENCY REGIME

RETURN PERIOD	EXCEEDANCE PROBABILITY	FLOOD
1.003	.997	1.94
1.050	.952	2.96
1.250	.800	4.02
2.000	.500	5.38
5.000	.200	7.06
10.000	.100	8.08
20.000	.050	9.01
50.000	.020	10.1
100.000	.010	10.9
200.000	.005	11.7
500.000	.002	12.7

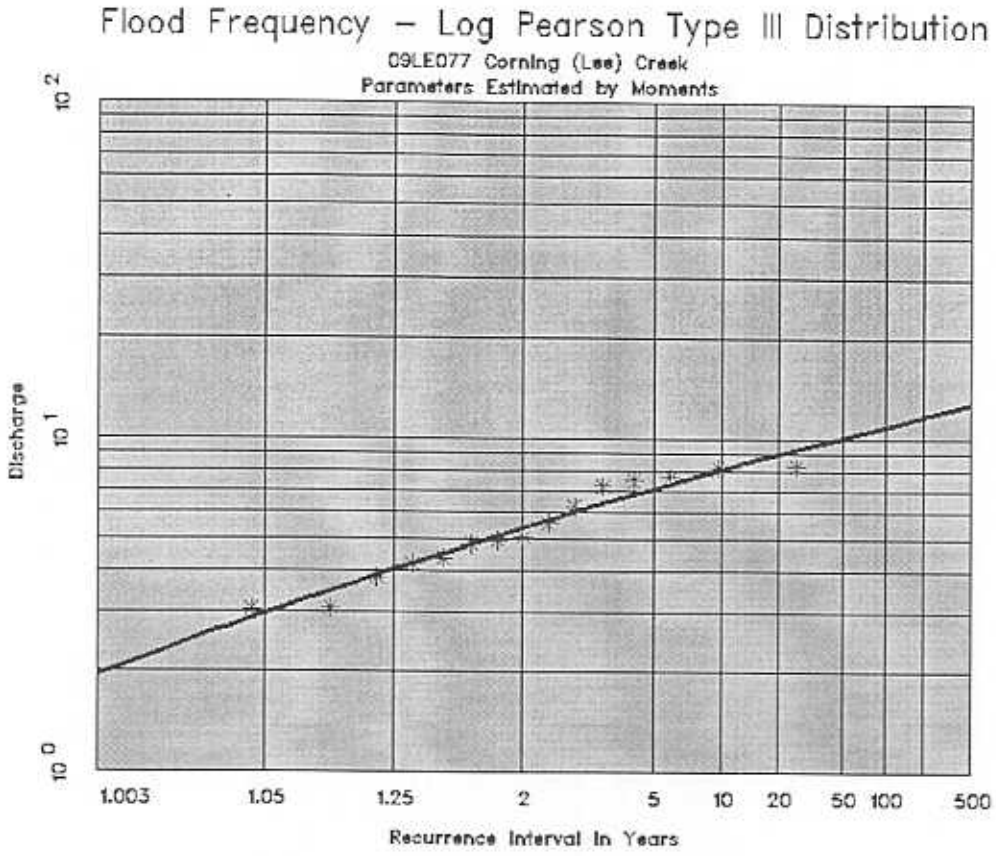

Flood Frequency – Log Pearson Type III Distribution
09LE077 Corning (Lee) Creek
Parameters Estimated by Moments
Discharge
10 2
10 1
10 0
1.003
1.05
1.25
2
5
10
20
50
100
500
Recurrence Interval In Years

Figure 1

FREQUENCY ANALYSIS - THREE-PARAMETER LOGNORMAL DISTRIBUTION
09LE077 Corning (Lee) Creek

SAMPLE STATISTICS

	MEAN	S.D.	C.V.	C.S.	C.K.
X SERIES	5.584	1.795	.322	.178	2.417
LN X SERIES	1.669	.336	.201	-.233	2.710
LN(X-A) SERIES	2.004	.240	.120	-.104	2.575

X(MIN)= 3.050
X(MAX)= 8.230
LOWER OUTLIER LIMIT OF X= 2.497

TOTAL SAMPLE SIZE= 15
NO. OF LOW OUTLIERS= 0
NO. OF ZERO FLOWS= 0

SOLUTION OBTAINED VIA MAXIMUM LIKELIHOOD

3LN PARAMETERS: A= -2.033 M= 2.004 S= .240

FLOOD FREQUENCY REGIME

RETURN PERIOD	EXCEEDANCE PROBABILITY	FLOOD
1.003	.997	1.81
1.050	.952	2.94
1.250	.800	4.03
2.000	.500	5.39
5.000	.200	7.04
10.000	.100	8.05
20.000	.050	8.97
50.000	.020	10.1
100.000	.010	10.9
200.000	.005	11.7
500.000	.002	12.8

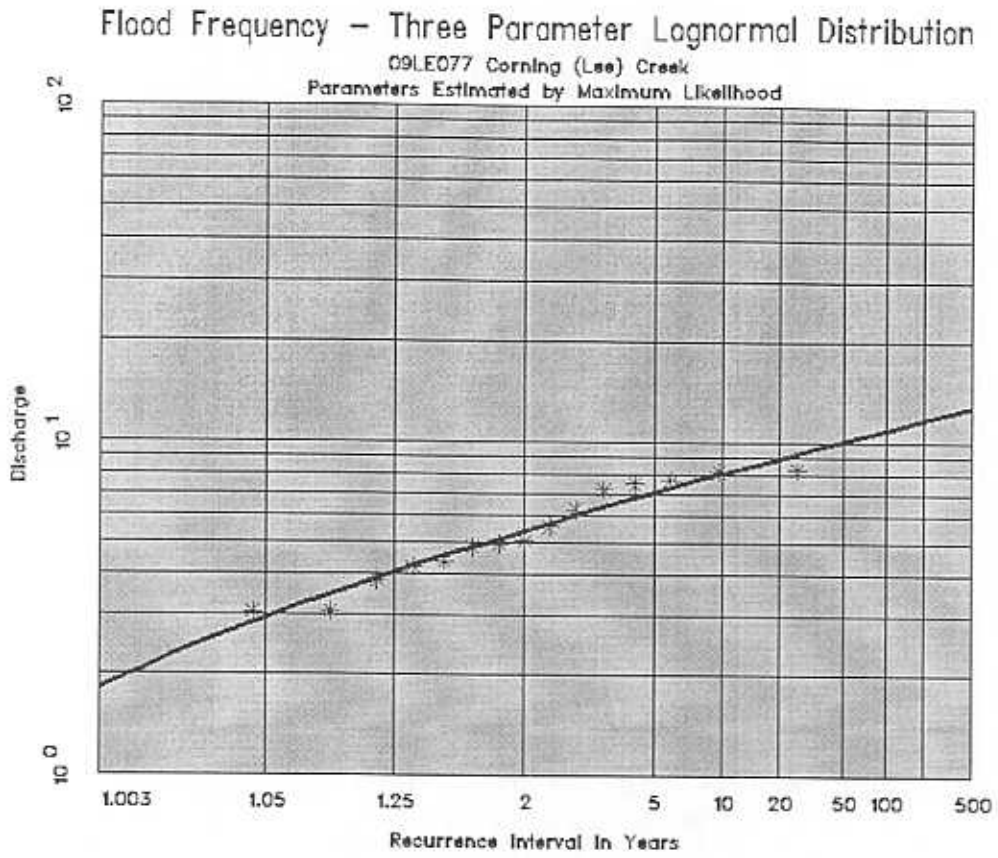

Flood Frequency – Three Parameter Lognormal Distribution
09LE077 Corning (Lee) Creek
Parameters Estimated by Maximum Likelihood
Discharge
10 2
10 1
10 0
1.003
1.05
1.25
2
5
10
20
50
100
500
Recurrence Interval in Years

Figure 1

FREQUENCY ANALYSIS - GENERALIZED EXTREME VALUE DISTRIBUTION
09LE077 Corning (Lee) Creek

SAMPLE STATISTICS

	MEAN	S.D.	C.V.	C.S.	C.K.
X SERIES	5.584	1.795	.322	.178	2.417
LN X SERIES	1.669	.336	.201	-.233	2.710
L-MOM RATIO	5.584	1.058	.189	.053	-.032

X(MIN)= 3.050
X(MAX)= 8.230
LOWER OUTLIER LIMIT OF X= 2.497

TOTAL SAMPLE SIZE= 15
NO. OF LOW OUTLIERS= 0
NO. OF ZERO FLOWS= 0

SOLUTION OBTAINED VIA L - MOMENTS

DISTRIBUTION IS UPPER BOUNDED AT (U+A/K)= .1802E+02
GEV PARAMETERS: U= 4.77 A= 1.769 K= .133

FLOOD FREQUENCY REGIME

RETURN PERIOD	EXCEEDANCE PROBABILITY	FLOOD
1.003	.997	1.26
1.050	.952	2.65
1.250	.800	3.90
2.000	.500	5.40
5.000	.200	7.18
10.000	.100	8.21
20.000	.050	9.11
50.000	.020	10.2
100.000	.010	10.9
200.000	.005	11.5
500.000	.002	12.2

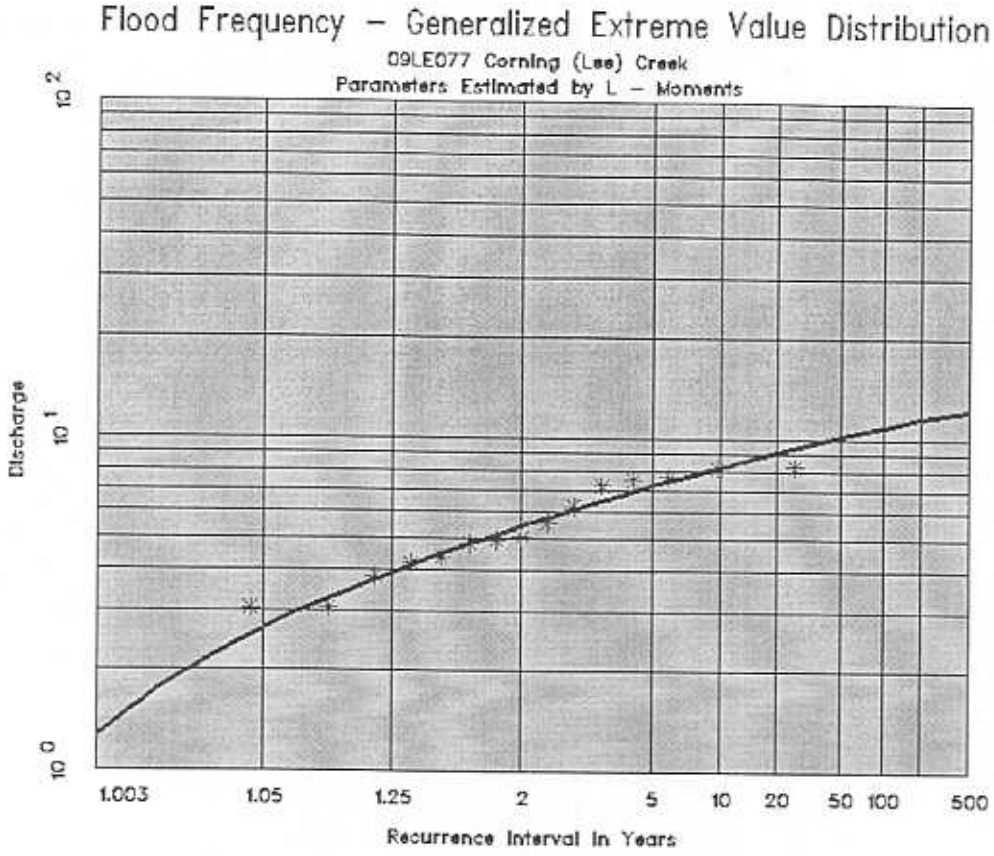

Flood Frequency – Generalized Extreme Value Distribution
09LE077 Corning (Lee) Creek
Parameters Estimated by L – Moments
Discharge
10^2
10^1
10^0
1.003
1.05
1.25
2
5
10
20
50
100
500
Recurrence Interval in Years

Figure 1

Mean Report

Canadian Hydrological Data © 1997 Environment Canada
Station: 09LE77 CORNING CREEK NEAR SQUILAX, BC
Latitude: 50°54'54"N, Longitude: 119°32'0"W
Region: Vancouver Drainage Area: 26.2 (km^2) Parameter: Flow (m^3/s)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1966	-	-	-	-	-	-	0.196	0.106	-	-	-	-	
1979	-	-	-	0.102	1.210	0.311	0.075	0.027	0.037	-	-	-	
1980	-	-	-	-	0.478	0.124	0.083	0.137	0.109	0.193	0.124	-	
1981	0.152	0.178	0.181	0.354	2.070	0.715	0.277	0.095	0.064	0.179	0.235	0.110	0.386
1982	0.063	0.067	0.060	0.286	2.520	1.380	0.427	0.107	0.096	0.131	0.088	0.059	0.444
1983	0.050	0.084	0.336	0.815	2.240	0.881	0.415	0.083	0.083	0.068	0.201	0.094	0.449
1984	0.088	0.080	0.165	0.434	1.280	2.220	0.510	0.066	0.042	0.041	0.033	0.022	0.414
1985	0.020	0.021	0.025	0.440	2.000	0.861	0.100	0.031	0.078	0.135	0.097	0.050	0.323
1986	0.041	0.036	0.131	0.452	2.010	1.040	0.261	0.061	0.056	0.049	0.042	0.035	0.354
1987	0.029	0.034	0.180	0.796	1.650	0.492	0.091	0.033	0.013	0.008	0.016	0.017	0.282
1988	0.014	0.015	0.019	0.822	1.680	0.555	0.132	0.031	0.044	0.110	0.134	0.075	0.304
1989	0.057	0.034	0.046	0.501	1.790	0.672	0.198	0.141	0.121	0.068	0.175	0.114	0.328
1990	0.085	0.065	0.091	0.942	1.250	2.030	0.403	0.064	0.031	0.022	0.056	0.035	0.422
1991	0.038	0.083	0.082	0.576	1.620	0.780	0.203	0.052	0.042	0.018	0.022	0.017	0.296
1992	0.020	0.034	0.125	0.657	1.240	0.359	0.104	0.027	0.026	0.029	0.036	0.024	0.224
1993	0.021	0.020	0.034	0.501	2.490	0.739	0.185	0.120	0.051	0.036	0.027	0.025	0.357
1994	0.032	0.028	0.088	1.020	1.750	0.717	0.165	0.033	0.017	0.021	0.016	0.019	0.327
1995	0.019	0.030	0.058	0.302	1.810	0.846	0.106	0.078	0.026	0.072	0.135	0.122	0.302
1996	0.091	0.086	0.186	0.823	1.530	1.560	0.342	0.080	0.106	0.113	0.201	0.091	0.433
Mean	**0.051**	**0.056**	**0.113**	**0.578**	**1.770**	**0.924**	**0.229**	**0.074**	**0.062**	**0.071**	**0.100**	**0.061**	**0.341**
Max	**0.152**	**0.178**	**0.336**	**1.020**	**2.520**	**2.220**	**0.510**	**0.196**	**0.137**	**0.179**	**0.235**	**0.124**	**0.449**
Min	**0.014**	**0.015**	**0.019**	**0.102**	**1.210**	**0.311**	**0.075**	**0.027***	**0.013**	**0.008**	**0.016***	**0.017***	**0.224**

Extreme Report

Canadian Hydrological Data © 1997 Environment Canada
Station: 09LE77 CORNING CREEK NEAR SQUILAX, BC
Latitude: 50°54'54"N, Longitude: 119°32'0"W
Region: Vancouver Drainage Area: 26.2 (km^2) Parameter: Flow (m^3/s)

Year	Maximum Instantaneous Water Discharge			Maximum Daily Water Discharge		Minimum Daily Water Discharge	
1966	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-
1980	-	-	-	2.12	May 05	-	-
1981	4.19	22:13 PST	May 25	3.73	May 19	0.029	Sep 18
1982	8.15	23:09 PST	May 17	6.25	May 25	0.038E	Dec 30
1983	4.82	18:49 PST	May 24	3.28	May 25	0.036B	Jan 02
1984	4.37	19:37 PST	May 30	3.72	Jun 09	0.015B	Dec 31
1985	5.05	17:30 PST	May 22	3.78	May 24	0.016B	Jan 01
1986	7.45	18:16 PST	May 26	5:35	May 27	0.027	Sep 08
1987	7.18	02:05 PST	May 01	4.88	May 01	0.007	Oct 10
1988	7.69	11:38 PST	May 13	5.75	May 13	0.008E	Jan 24
1989	5:54	09:28 PST	May 10	3.78	May 10	0.026B	Feb 04
1990	-	-	-	10.4E	June 11	0.016	Oct 02
1991	3.81	18:31 PST	May 19	2.88	May 19	0.014B	Dec 22
1992	3.07	19:20 PST	May 06	2.29	May 06	0.012	Sep 01
1993	6.25	19:05 PST	May 13	4.84	May 15	0.013B	Feb 16
1994	3.05	20:52 PST	May 09	2.39	May 10	0.007	Sep 28
1995	-	-	-	3.50E	May 15	0.014B	Jan 06
1996	4.91	20:00 PST	Jun 03	3.61	May 31	0.037	Aug 29
1997	8.23	19:00 PST	May 15	6.63	May 15	0.036	Sep 10

APPENDIX C

Detailed ECA Calculation Tables

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 1999
Total Sub-basin Area (km²): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
101	82M/003	665-E	52.9	52.9		L96	0.3	1997	56	1.42	0	52.90	0.00	52.90	Planted 1997
103	82M/003		30.1	30.1		L51-53	17	1994	10	17.5	90	3.01	0.00	3.01	Airphoto interpretation 1994
104	82M/003-215		5.9	5.9		L91	0.25	1993	56	3.61	25	4.43	0.00	4.43	
105	82M/003		27.3	27.3		L51-53	27	1994	10	27.5	90	2.73	0.00	2.73	Airphoto interpretation 1994
107	82M/003-69		47.8	47.8		L95	0.25	1997	56	1.37	0	47.80	0.00	47.80	
108	82M/003		186.5	186.5		B60	6.5	1999	40	6.5	50	93.25	0.00	93.25	Burn, airphoto interpretation 1994
113	82M/003		3.4	3.4		B60	0	1999	0	0	0	3.40	0.00	3.40	NSR, airphoto interpretation 1994, site visit 1999
116	82M/003		4.8	4.8		B60	7	1999	40	7	75	1.20	0.00	1.20	Burn
117	82M/003-222		6.7	6.7		L88,89	0.2	1990	56	5.24	50	3.35	0.00	3.35	Planted 1990
119	82M/003		0.01	0.01		B60	0	1999	0	0	0	0.01	0.00	0.01	NSR, airphoto interpretation 1994, site visit 1999
121	82L/093-01		14.8	14.8		L77,78	3.15	1995	9	3.51	25	11.10	0.00	11.10	
122	82M/003		1.6	1.6		B60	0	1998	0	0	0	1.60	0.00	1.60	NSR, airphoto interpretation 1994
123	82L/093-01		2.2	2.2		L77,78	3.15	1995	9	3.51	25	1.65	0.00	1.65	
125	82L/093-02		0.8	0.8		L73	4	1987	20	5.4	50	0.40	0.00	0.40	
126	82L/093-01		22.1	22.1		L77,78	3.15	1995	9	3.51	25	16.58	0.00	16.58	
127	82L/093-01		5	5		L77,78	3.15	1995	9	3.51	25	3.75	0.00	3.75	
											Sub-totals	247.15	0.00	247.15	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 1999
Total Sub-basin Area (km²): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												247.15	0.00	247.15	Sub-totals from page 1
124	82L093-02		5.1	5.1		L73	4	1987	20	6.4	50	2.55	0.00	2.55	
124	82L093		5.3	5.3		B60	6.5	1999	40	6.5	50	2.65	0.00	2.65	Burn, airphoto interpretation 1994
134	82L093		0.1**	0.05		L58	19	1994	9	19.45	90	0.01	0.00	0.01	**Logged 40% in 1958, airphoto interpretation 1994
137	82L093		24.8**	12.4		L58	19	1994	9	19.45	90	1.24	0.00	1.24	**Logged 40% in 1958, airphoto interpretation 1994
131	82L093		19.8	19.8		B60	9.6	1998	56	10.16	90	1.98	0.00	1.98	Burn, airphoto interpretation 1994
134	82L093		0.8	0.8		B60	9.6	1998	56	10.16	90	0.08	0.00	0.08	Burn, airphoto interpretation 1994
144	82L093		8.8**	4.4		L58	28	1994	40	30	90	0.44	0.00	0.44	**Logged 40% in 1958, airphoto interpretation 1994
146	82L093-04		43.6	43.6		L77	13	1994	56	13.8	90	4.36	0.00	4.36	NSR, Airphoto Interpretation 1994, site visit 1999
142	82L093		139.6	139.6		B60	6.5	1999	40	6.5	50	69.80	0.00	69.80	Burn, airphoto interpretation 1994
143	82L093		16.4	16.4		B60	6.5	1999	40	6.5	50	8.20	0.00	8.20	Burn, airphoto interpretation 1994
148	82L093		4.7	4.7		B60	4	1999	40	4	25	3.53	0.00	3.53	Burn, airphoto interpretation 1994
151	82L093-03		20.2	20.2		B60	4	1999	60	4	25	15.15	0.00	15.15	Burn, Airphoto Interpretation 1994, site visit 1999
149	82L093-05		19.4	19.4		L78	11	1994	40	13	90	1.94	0.00	1.94	
153	82L093		4.6	4.6		B60	6.5	1999	40	6.5	50	2.30	0.00	2.30	Burn, airphoto interpretation 1994
157	82L093		12.3	12.3		L	18	1994	60	21	90	1.23	0.00	1.23	Logged 30%, airphoto interpretation 1994, unknown harvest date
											Sub-totals	362.60	0.00	362.60	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 1999
Total Sub-basin Area (km^2): 10

Date: Jan 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												362.60	0.00	362.60	Sub-totals from page 2
159	82L093-30		11.6	11.6		L58	11	1989	14	13.66	90	1.16	0.00	1.16	
166	82L093-81		4.3	4.3		L95	0.25	1996	20	0.85	0	4.30	0.00	4.30	
162	82L093-82		4.4	4.4		L95	0.25	1996	20	0.85	0	4.40	0.00	4.40	
164	82L093		8.1**	4.05		L	25	1994	20	26	90	0.41	0.00	0.41	**Logged 50%, airphoto interpretation 1994, unknown harvest date
172	82L093-29		7.3	7.3		L82	14	1990	19	15.71	90	0.73	0.00	0.73	

Sub-totals	373.60	0.00	373.60
Total Percent ECA			37.36%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 1999
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
136	82L093-03		2.6	2.6		B60	9.6	1999	56	9.6	90	0.26	0.00	0.26	Burn, Airphoto Interpretation 1994, site visit 1999
135	82L093-03		8.1	8.1		B60	6.5	1999	40	6.5	50	4.05	0.00	4.05	Burn, Airphoto Interpretation 1994, site visit 1999
130	82L093-03		9.5	9.5		B60	9.6	1999	56	9.6	90	0.95	0.00	0.95	Burn, Airphoto Interpretation 1994, site visit 1999
133	82L093-03		0.5	0.5		B60	9.6	1999	56	9.6	90	0.05	0.00	0.05	Burn, Airphoto Interpretation 1994, site visit 1999
139	82L093-03		17.4	17.4		B60	6.5	1999	40	6.5	50	8.70	0.00	8.70	Burn, Airphoto Interpretation 1994, site visit 1999
129	82L093-03		45.9	45.9		B60	9.6	1999	56	9.6	90	4.59	0.00	4.59	Burn, Airphoto Interpretation 1994, site visit 1999
145	82L093-03		76.4	76.4		B60	6.5	1999	40	6.5	50	38.20	0.00	38.20	Burn, Airphoto Interpretation 1994, site visit 1999
150	82L093-05		0.02	0.02		L78	11	1994	20	12	90	0.00	0.00	0.00	
165	82L093-03		6.2**	3.1		L	25	1994	20	26	90	0.31	0.00	0.31	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
161	82L093-06		13.5	13.5		L80	13	1994	20	16	90	1.35	0.00	1.35	
163	82L093-82		30.5	30.5		L95	0.25	1996	20	0.85	0	30.50	0.00	30.50	
170	82L093		7**	3.5		L	25	1994	20	26	90	0.35	0.00	0.35	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
168	82L093		45.7**	22.85		L	25	1994	20	26	90	2.29	0.00	2.29	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
174	82L093-29		27.7	27.7		L82	14	1990	19	15.71	90	2.77	0.00	2.77	Burn, Airphoto Interpretation 1994, site visit 1999
175	82L093		30.7	30.7		L	25	1994	20	26	90	3.07	0.00	3.07	Airphoto Interpretation 1994, unknown harvest date
186	82L093-70		28.7	28.7		L94,95	0.2	1997	20	0.6	0	28.70	0.00	28.70	
											Sub-totals	126.14	0.00	126.14	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date:: 1999
Total Sub-basin Area (km²): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												126.14	0.00	126.14	Sub-totals from page 1
178	82L093		52.2**	26.1		L	30	1994	20	33	90	2.61	0.00	2.61	**Logged 30%, Airphoto interp. 1994, unknown harvest date.
196	82L093-36		22		22	L73,74	12	1994	20	13	90	0.00	2.20	2.20	
193	82L093-26		1.8	1.8		L74	2.8	1993	15	4	25	1.35	0.00	1.35	
											Sub-totals	130.10	2.20	132.30	
											Total Percent ECA			22.42%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 1999
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
189	82L093		0.3	0.3		L30	16	1994	20	17	90	0.03	0.00	0.03	Airphoto interpretation 1994
191	82L093-26		0.3	0.3		L74	2.8	1991	15	4	25	0.23	0.00	0.23	
192	82L093-26		2.2	2.2		L74	2.8	1991	15	4	25	1.65	0.00	1.65	
198	82L093-37		2.6	2.6		L74	2.2	1991	20	3.8	25	1.95	0.00	1.95	
201	82L093-86		2.9	2.9		L94	0.3	1999	50	0.3	0	2.90	0.00	2.90	NSR on Forest Cover, to be planted in 1999
200	82L093-86		2.3	2.3		L94	0.3	1999	50	0.3	0	2.30	0.00	2.30	NSR on Forest Cover, to be planted in 1999
206	82L093-86		2.5	2.5		L94	0.3	1999	50	0.3	0	2.50	0.00	2.50	NSR on Forest Cover, to be planted in 1999
207	82L093-86		1.2	1.2		L94	0.3	1999	50	0.3	0	1.20	0.00	1.20	NSR on Forest Cover, to be planted in 1999
212	82L093-86		0.5		0.5	L94	0.3	1999	50	0.3	0	0.00	0.50	0.50	NSR on Forest Cover, to be planted in 1999
216	82L093-86		0.1		0.1	L94	0.3	1999	50	0.3	0	0.00	0.10	0.10	NSR on Forest Cover, to be planted in 1999
208	82L093-86		5.5		5.5	L94	0.3	1999	50	0.3	0	0.00	5.50	5.50	NSR on Forest Cover, to be planted in 1999
205	82L093-37		1.2		1.2	L74	2.2	1991	20	3.8	25	0.00	0.90	0.90	
215	82L093-86		0.8		0.8	L94	0.3	1999	50	0.3	0	0.00	0.80	0.80	NSR on Forest Cover, to be planted in 1999
214	82L093-38		9.3		9.3	L74	10	1991	50	14	90	0.00	0.93	0.93	
220	82L093-40		0.06		0.06	L74	9.5	1991	50	13.5	90	0.00	0.01	0.01	
											Sub-totals	12.76	8.74	21.49	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 1999
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												12.76	8.74	21.49	Sub-totals from page 1
221	82L093-40		6.2		6.2	L74	9.5	1991	50	13.5	90	0.00	0.62	0.62	
223	82L093-40		0.9		0.9	L74	9.5	1991	50	13.5	90	0.00	0.09	0.09	
225	82L093-40		1.1		1.1	L74	9.5	1991	50	13.5	90	0.00	0.11	0.11	
224	82L093		13.3		13.3		0	1999	0	0	0	0.00	13.30	13.30	BC Hydro right of way.
226	82L093		61.9		61.9	L	12	1994	20	13	90	0.00	6.19	6.19	Airphoto interpretation 1994, unknown harvest date.
232	82L093		1.1		1.1	L	17	1994	20	18	90	0.00	0.11	0.11	Airphoto interpretation 1994, unknown harvest date.
230	82L093		58.7		58.7	L	12	1994	20	13	90	0.00	5.87	5.87	Airphoto interpretation 1994, unknown harvest date.
236	82L093-52		3.9		3.9	L71	0	1997	0	0	0	0.00	3.90	3.90	NSR on forest cover.

Sub-totals	12.76	38.93	51.68
Total Percent ECA			19.14%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 1999
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
244	82L093		0.7		0.7		0	1999	0	0	0	0.00	0.70	0.70	Urban.
243	82L093		8.1		8.1		0	1999	0	0	0	0.00	8.10	8.10	Urban.
239	82L093		20		20		0	1999	0	0	0	0.00	20.00	20.00	Cultivated.
240	82L093		0.6		0.6		0	1999	0	0	0	0.00	0.60	0.60	Urban.
238	82L093		7.2**		3.6		26	1994	20	27	90	0.00	0.36	0.36	**Logged 50%, private property.
237	82L093-50		9.3		9.3	L84	17.3	1995	20	18.1	90	0.00	0.93	0.93	
235	82L093		16.5		16.5	L	12	1994	20	13	90	0.00	1.65	1.65	Airphoto interp. 1994, unknown harvest date.
234	82L093		5.1		5.1	L	12	1994	20	13	90	0.00	0.51	0.51	Airphoto interp. 1994, unknown harvest date.
233	82L093		9.2		9.2	L	17	1994	20	18	90	0.00	0.92	0.92	Airphoto interp. 1994, unknown harvest date.
231	82L093		0.1		0.1	L	12	1994	20	13	90	0.00	0.01	0.01	Airphoto interp. 1994, unknown harvest date.
229	82L093		7.3		7.3	L	12	1994	20	13	90	0.00	0.73	0.73	Airphoto interp. 1994, unknown harvest date.
227	82L093		4.4		4.4		0	1999	0	0	0	0.00	4.40	4.40	BC Hydro right of way.
228	82L093		15.6		15.6		0	1999	0	0	0	0.00	15.60	15.60	BC Hydro right of way.
222	82L093-60		8.5		8.5	L88	0.2	1991	20	1.8	0	0.00	8.50	8.50	
219	82L093-41		29.7		29.7	L78	2.1	1992	20	3.5	25	0.00	22.28	22.28	
218	82L093-41		16.1		16.1	L88	2.1	1998	20	2.3	0	0.00	16.10	16.10	
											Sub-totals	0.00	101.39	101.39	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 1999
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												0.00	101.39	101.39	Sub-totals from page 1
210	82L093-59		8.2		8.2	L88	2.1	1998	20	2.3	0	0.00	8.20	8.20	
197	82L093-35		16.1		16.1	L80	17	1994	20	18	90	0.00	1.61	1.61	Airphoto interpretation1994
204	82L093-34		6		6	L81	0.7	1994	20	1.7	0	0.00	6.00	6.00	Polygon is split, small section logged 30% in 1983
199	82L093-58		26.4		26.4	L88	0.2	1993	20	1.4	0	0.00	26.40	26.40	
195	82L093-34		14.2		14.2	L81	0.7	1994	10	1.2	0	0.00	14.20	14.20	
187	82L093-53		21.6		21.6	L77,79	3.8	1995	20	4.6	25	0.00	16.20	16.20	
183	82L093-53		0.4		0.4	L77,79	3.8	1995	20	4.6	25	0.00	0.30	0.30	
182	82L093-33		0.4		0.4	L77,79	3.8	1995	20	4.6	25	0.00	0.30	0.30	
213	82L093-38		5.1		5.1	L74	10	1991	50	14	90	0.00	0.51	0.51	
202	82L093-36		4.5		4.5	L73,74	12	1994	20	13	90	0.00	0.45	0.45	
176	82L093-29		7	7		L82	14	1990	19	15.71	90	0.70	0.00	0.70	
179	82L093-31		0.01		0.01	L78,79	0.4	1996	10	0.7	0	0.00	0.01	0.01	
177	82L093-31		11.9	11.9		L78,79	0.4	1996	10	0.7	0	11.90	0.00	11.90	
184	82L093-33		2.2	2.2		L77,79	3.8	1995	20	4.6	25	1.65	0.00	1.65	
181	82L093-33		17.4	17.4		L77,79	3.8	1995	20	4.6	25	13.05	0.00	13.05	
190	82L093-34		1.6	1.6		L81	0.7	1994	10	1.2	0	1.60	0.00	1.60	
											Sub-totals	28.90	175.57	204.47	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 1999
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												28.90	175.57	204.47	Sub-totals from page 2
185	82L093		1.1	1.1		L98	0.3	1999	20	0.3	0	1.10	0.00	1.10	Will be planted in 1999.
180	82L093		0.2	0.2		L98	0.3	1999	20	0.3	0	0.20	0.00	0.20	Will be planted in 1999.
177	82L093-32		10.9	10.9		L81	10.8	1993	14	11.36	90	1.09	0.00	1.09	
158	82L093-30		86.8	86.8		L58	11	1980	14	13.66	90	8.68	0.00	8.68	
171	82L093		8	8		L	17	1994	20	18	90	0.80	0.00	0.80	Airphoto interpretation, 1994.
169	82L093-30		2.5	2.5		L58	11	1980	14	13.66	90	0.25	0.00	0.25	
167	82L093-30		0.1	0.1		L58	11	1980	14	13.66	90	0.01	0.00	0.01	
160	82L093-30		0.2	0.2		L58	11	1980	10	12.9	90	0.02	0.00	0.02	
154	82L093-40		7.4	7.4		B60	3.4	1998	60	4	25	5.55	0.00	5.55	Barn, airphoto interpretation 1994, site visit 1999.
											Sub-totals	46.60	175.57	222.17	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2000
Total Sub-basin Area (km²): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
101	82M003	665-1	52.9	52.9		L96	0.3	1997	56	1.98	0	52.90	0.00	52.90	Planted 1997.
103	82M003		30.1	30.1		L51-53	17	1994	10	17.6	90	3.01	0.00	3.01	Airphoto interpretation 1994.
104	82M003-215		5.9	5.9		L91	0.25	1993	56	4.17	25	4.43	0.00	4.43	
105	82M003		27.3	27.3		L51-53	27	1994	10	27.6	90	2.73	0.00	2.73	Airphoto interpretation 1994.
107	82M003-60		47.8	47.8		L95	0.25	1995	56	1.93	0	47.80	0.00	47.80	
108	82M003		186.5	186.5		B60	6.5	1999	40	6.9	50	93.25	0.00	93.25	Burn, airphoto interpretation 1994.
113	82M003		3.4	3.4		B60	0	1999	0	0	0	3.40	0.00	3.40	NSR, airphoto interpretation 1994, site visit 1999.
116	82M003		4.8	4.8		B60	7	1999	40	7.4	75	1.20	0.00	1.20	Burn.
117	82M003-222		6.7	6.7		L88,89	0.2	1990	56	5.8	50	3.35	0.00	3.35	Planted 1990.
119	82M003		0.01	0.01		B60	0	1999	0	0	0	0.01	0.00	0.01	NSR, airphoto interpretation 1994, site visit 1999.
121	82L093-01		14.8	14.8		L77,78	3.15	1995	9	3.6	25	11.10	0.00	11.10	
122	82M003		1.6	1.6		B60	0	1998	0	0	0	1.60	0.00	1.60	NSR, airphoto interpretation 1994.
123	82L093-01		2.2	2.2		L77,78	3.15	1995	9	3.6	25	1.65	0.00	1.65	
125	82L093-02		0.8	0.8		L73	4	1987	20	6.6	50	0.40	0.00	0.40	
126	82L093-01		22.1	22.1		L77,78	3.15	1995	9	3.6	25	16.58	0.00	16.58	
127	82L093-01		5	5		L77,78	3.15	1995	9	3.6	25	3.75	0.00	3.75	
											Sub-totals	247.15	0.00	247.15	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2000
Total Sub-basin Area (km^2): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												247.15	0.00	247.15	Sub-totals from page 1
128	82L093-02		5.1	5.1		L73	4	1987	20	6.6	50	2.55	0.00	2.55	
124	82L093		5.3	5.3		B60	6.5	1999	40	6.9	50	2.65	0.00	2.65	Burn, airphoto interpretation 1994
138	82L093		0.1**	0.05		L58	19	1994	9	19.54	90	0.01	0.00	0.01	**Logged 40% in 1958, airphoto interpretation 1994
137	82L093		24.8**	12.4		L58	19	1994	9	19.54	90	1.24	0.00	1.24	**Logged 40% in 1958, airphoto interpretation 1994
131	82L093		19.8	19.8		B60	9.6	1998	56	10.72	90	1.98	0.00	1.98	Burn, airphoto interpretation 1994
134	82L093		0.8	0.8		B60	9.6	1998	56	10.72	90	0.08	0.00	0.08	Burn, airphoto interpretation 1994
144	82L093		8.8**	4.4		L58	28	1994	40	30.4	90	0.44	0.00	0.44	**Logged 40% in 1958, airphoto interpretation 1994
146	82L093-04		43.6	43.6		L77	13	1994	56	16.36	90	4.36	0.00	4.36	NSR, Airphoto Interpretation 1994, site visit 1999
142	82L093		139.6	139.6		B60	6.5	1999	40	6.9	50	69.80	0.00	69.80	Burn, airphoto interpretation 1994
143	82L093		16.4	16.4		B60	6.5	1999	40	6.9	50	8.20	0.00	8.20	Burn, airphoto interpretation 1994
148	82L093		4.7	4.7		B60	4	1999	40	4.4	25	3.53	0.00	3.53	Burn, airphoto interpretation 1994
151	82L093-03		20.2	20.2		B60	4	1999	60	4.6	25	15.15	0.00	15.15	Burn, Airphoto Interpretation 1994, site visit 1999
149	82L093-05		19.4	19.4		L78	11	1994	40	13.4	90	1.94	0.00	1.94	
153	82L093		4.6	4.6		B60	6.5	1999	40	6.9	50	2.30	0.00	2.30	Burn, airphoto interpretation 1994
157	82L093		12.3	12.3		L	18	1994	60	21.6	90	1.23	0.00	1.23	Logged 50%, airphoto interpretation 1994, unknown harvest date
											Sub-totals	362.60	0.00	362.60	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2000
Total Sub-basin Area (km²): 10

GIS Map Ref #	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												362.60	0.00	362.60	Sub-totals from page 2
159	82L093-30		11.6	11.6		L58	11	1980	14	13.8	90	1.16	0.00	1.16	
166	82L093-81		4.3	4.3		L95	0.25	1996	20	1.05	0	4.30	0.00	4.30	
162	82L093-82		4.4	4.4		L95	0.25	1996	20	1.05	0	4.40	0.00	4.40	
164	82L093		8.1**	4.05		L	25	1994	20	26.2	90	0.41	0.00	0.41	**Logged 30%, airphoto interpretation 1994, unknown harvest date.
172	82L093-29		7.3	7.3		L82	14	1990	19	15.9	90	0.73	0.00	0.73	
											Sub-totals	373.60	0.00	373.60	
											Total Percent ECA			37.36%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2000
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
136	82L093-03		2.6	2.6		B60	9.6	1999	56	10.16	90	0.26	0.00	0.26	Burn, Airphoto Interpretation 1994, site visit 1999.
135	82L093-03		8.1	8.1		B60	6.5	1999	40	6.9	50	4.05	0.00	4.05	Burn, Airphoto Interpretation 1994, site visit 1999.
130	82L093-03		9.5	9.5		B60	9.6	1999	56	10.16	90	0.95	0.00	0.95	Burn, Airphoto Interpretation 1994, site visit 1999.
133	82L093-03		0.5	0.5		B60	9.6	1999	56	10.16	90	0.05	0.00	0.05	Burn, Airphoto Interpretation 1994, site visit 1999.
139	82L093-03		17.4	17.4		B60	6.5	1999	40	6.9	50	8.70	0.00	8.70	Burn, Airphoto Interpretation 1994, site visit 1999.
129	82L093-03		45.9	45.9		B60	9.6	1999	56	10.16	90	4.59	0.00	4.59	Burn, Airphoto Interpretation 1994, site visit 1999.
145	82L093-03		76.4	76.4		B60	6.5	1999	40	6.9	50	38.20	0.00	38.20	Burn, Airphoto Interpretation 1994, site visit 1999.
150	82L093-05		0.02	0.02		L78	11	1994	20	12.2	90	0.00	0.00	0.00	
165	82L093-03		6.2**	3.1		L	25	1994	20	26.2	90	0.31	0.00	0.31	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
161	82L093-06		13.5	13.5		L80	15	1994	20	16.2	90	1.35	0.00	1.35	
163	82L093-82		30.5	30.5		L95	0.25	1996	20	1.05	0	30.50	0.00	30.50	
170	82L093		7**	3.5		L	25	1994	20	26.2	90	0.35	0.00	0.35	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
168	82L093		45.7**	22.85		L	25	1994	20	26.2	90	2.29	0.00	2.29	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
174	82L093-29		27.7	27.7		L82	14	1990	19	15.9	90	2.77	0.00	2.77	Burn, Airphoto Interpretation 1994, site visit 1999.
175	82L093		30.7	30.7		L	25	1994	20	26.2	90	3.07	0.00	3.07	Airphoto Interpretation 1994, unknown harvest date
186	82L093-50		28.7	28.7		L94,95	0.2	1997	20	0.8	0	28.70	0.00	28.70	
											Sub-totals	126.14	0.00	126.14	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2000
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												126.14	0.00	126.14	Sub-totals from page 1
178	82L093		52.2**	26.1		L	30	1994	20	31.2	90	2.61	0.00	2.61	**Logged 30%, Airphoto interp. 1994, unknown harvest date.
196	82L093-36		22		22	L73,74	12	1994	20	13.2	90	0.00	2.20	2.20	
193	82L093-26		1.8	1.8		L74	2.8	1991	15	4.15	25	1.35	0.00	1.35	
											Sub-totals	130.10	2.20	132.30	
											Total Percent ECA			22.41%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2000
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
189	82L093		0.3	0.3		L30	16	1994	20	17.2	90	0.03	0.00	0.03	Airphoto interpretation 1994.
191	82L093-26		0.3	0.3		L74	2.8	1991	15	4.15	25	0.23	0.00	0.23	
192	82L093-26		2.2	2.2		L74	2.8	1991	15	4.15	25	1.65	0.00	1.65	
198	82L093-37		2.6	2.6		L74	2.2	1991	20	4	25	1.95	0.00	1.95	
201	82L093-86		2.9	2.9		L94	0.3	1999	50	0.8	0	2.90	0.00	2.90	NSR on Forest Cover, to be planted in 1999.
200	82L093-86		2.3	2.3		L94	0.3	1999	50	0.8	0	2.30	0.00	2.30	NSR on Forest Cover, to be planted in 1999.
206	82L093-86		2.5	2.5		L94	0.3	1999	50	0.8	0	2.50	0.00	2.50	NSR on Forest Cover, to be planted in 1999.
207	82L093-86		1.2	1.2		L94	0.3	1999	50	0.8	0	1.20	0.00	1.20	NSR on Forest Cover, to be planted in 1999.
212	82L093-86		0.5		0.5	L94	0.3	1999	50	0.8	0	0.00	0.50	0.50	NSR on Forest Cover, to be planted in 1999.
216	82L093-86		0.1		0.1	L94	0.3	1999	50	0.8	0	0.00	0.10	0.10	NSR on Forest Cover, to be planted in 1999.
208	82L093-86		5.5		5.5	L94	0.3	1999	50	0.8	0	0.00	5.50	5.50	NSR on Forest Cover, to be planted in 1999.
205	82L093-37		1.2		1.2	L74	2.2	1991	20	4	25	0.00	0.90	0.90	
215	82L093-86		0.8		0.8	L94	0.3	1999	50	0.8	0	0.00	0.80	0.80	NSR on Forest Cover, to be planted in 1999.
214	82L093-38		9.3		9.3	L74	10	1991	50	14.5	90	0.00	0.93	0.93	
220	82L093-40		0.06		0.06	L74	9.5	1991	50	14	90	0.00	0.01	0.01	
											Sub-totals	12.76	8.74	21.49	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2000
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												12.76	8.74	21.49	Sub-totals from page 1
221	82L093-40		6.2		6.2	L74	9.5	1991	50	14	90	0.00	0.62	0.62	
223	82L093-40		0.9		0.9	L74	9.5	1991	50	14	90	0.00	0.09	0.09	
225	82L093-40		1.1		1.1	L74	9.5	1991	50	14	90	0.00	0.11	0.11	
224	82L093		13.3		13.3		0	1999	0	0	0	0.00	13.30	13.30	BC Hydro right of way.
226	82L093		61.9		61.9	L	12	1994	20	13.2	90	0.00	6.19	6.19	Airphoto interpretation 1994, unknown harvest date.
232	82L093		1.1		1.1	L	17	1994	20	18.2	90	0.00	0.11	0.11	Airphoto interpretation 1994, unknown harvest date.
230	82L093		58.7		58.7	L	12	1994	20	13.2	90	0.00	5.87	5.87	Airphoto interpretation 1994, unknown harvest date.
236	82L093-52		3.9		3.9	L71	0	1997	0	0	0	0.00	3.90	3.90	NSR on forest cover.

Sub-totals	12.76	38.93	51.68
Total Percent ECA			19.14%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2000
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
244	82L093		0.7		0.7		0	1999	0	0	0	0.00	0.70	0.70	Urban
243	82L093		8.1		8.1		0	1999	0	0	0	0.00	8.10	8.10	Urban
239	82L093		20		20		0	1999	0	0	0	0.00	20.00	20.00	Cultivated
240	82L093		0.6		0.6		0	1999	0	0	0	0.00	0.60	0.60	Urban
238	82L093		7.2**		3.6		26	1994	20	27.2	90	0.00	0.36	0.36	**Logged 50%, private property
237	82L093-50		9.3		9.3	L84	17.3	1995	20	18.3	90	0.00	0.93	0.93	
235	82L093		16.5		16.5	L	12	1994	20	13.2	90	0.00	1.65	1.65	Airphoto interp. 1994, unknown harvest date.
234	82L093		5.1		5.1	L	12	1994	20	13.2	90	0.00	0.51	0.51	Airphoto interp. 1994, unknown harvest date.
233	82L093		9.2		9.2	L	17	1994	20	18.2	90	0.00	0.92	0.92	Airphoto interp. 1994, unknown harvest date.
231	82L093		0.1		0.1	L	12	1994	20	13.2	90	0.00	0.01	0.01	Airphoto interp. 1994, unknown harvest date.
229	82L093		7.3		7.3	L	12	1994	20	13.2	90	0.00	0.73	0.73	Airphoto interp. 1994, unknown harvest date.
227	82L093		4.4		4.4		0	1999	0	0	0	0.00	4.40	4.40	BC Hydro right of way.
228	82L093		15.6		15.6		0	1999	0	0	0	0.00	15.60	15.60	BC Hydro right of way.
222	82L093-60		8.5		8.5	L88	0.2	1991	20	2	0	0.00	8.50	8.50	
219	82L093-41		29.7		29.7	L78	2.1	1992	20	3.7	25	0.00	22.28	22.28	
218	82L093-41		16.1		16.1	L88	2.1	1998	20	2.5	0	0.00	16.10	16.10	
											Sub-totals	0.00	101.39	101.39	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2000
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												0.00	101.39	101.39	Sub-totals from page 1
210	82L093-39		8.2		8.2	L88	2.1	1998	20	2.5	0	0.00	8.20	8.20	
197	82L093-35		16.1		16.1	L80	17	1994	20	18.2	90	0.00	1.61	1.61	Airphoto interpretation1994
204	82L093-34		6		6	L81	0.7	1994	20	1.9	0	0.00	6.00	6.00	Polygon is split, small section logged 10% in 1980
199	82L093-58		26.4		26.4	L88	0.2	1993	20	1.6	0	0.00	26.40	26.40	
195	82L093-34		14.2		14.2	L81	0.7	1994	10	1.3	0	0.00	14.20	14.20	
187	82L093-33		21.6		21.6	L77,79	3.8	1995	20	4.8	25	0.00	16.20	16.20	
183	82L093-33		0.4		0.4	L77,79	3.8	1995	20	4.8	25	0.00	0.30	0.30	
182	82L093-33		0.4		0.4	L77,79	3.8	1995	20	4.8	25	0.00	0.30	0.30	
213	82L093-38		5.1		5.1	L74	10	1991	50	14.5	90	0.00	0.51	0.51	
202	82L093-36		4.5		4.5	L73,74	12	1994	20	13.2	90	0.00	0.45	0.45	
176	82L093-29		7	7		L82	14	1990	19	15.9	90	0.70	0.00	0.70	
179	82L093-31		0.01		0.01	L78,79	0.4	1996	10	0.8	0	0.00	0.01	0.01	
173	82L093-31		11.9	11.9		L78,79	0.4	1996	10	0.8	0	11.90	0.00	11.90	
184	82L093-33		2.2	2.2		L77,79	3.8	1995	20	4.8	25	1.65	0.00	1.65	
181	82L093-33		17.4	17.4		L77,79	3.8	1995	20	4.8	25	13.05	0.00	13.05	
190	82L093-34		1.6	1.6		L81	0.7	1994	10	1.3	0	1.60	0.00	1.60	
											Sub-totals	28.90	175.57	204.47	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2000
Total Sub-basin Area (km²): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												28.90	172.57	204.47	Sub-totals from page 2
185	82L093		1.1	1.1		L98	0.3	1999	20	0.5	0	1.10	0.00	1.10	Will be planted in 1999
180	82L093		0.2	0.2		L98	0.3	1999	20	0.5	0	0.20	0.00	0.20	Will be planted in 1999
177	82L093-32		10.9	10.9		L81	10.8	1995	14	11.5	90	1.09	0.00	1.09	
158	82L093-30		86.8	86.8		L58	11	1980	14	13.8	90	8.68	0.00	8.68	
171	82L093		8	8		L	17	1994	20	18.2	90	0.80	0.00	0.80	Airphoto interpretation, 1994
169	82L093-30		2.5	2.5		L58	11	1980	14	13.8	90	0.25	0.00	0.25	
167	82L093-30		0.1	0.1		L58	11	1980	14	13.8	90	0.01	0.00	0.01	
160	82L093-30		0.2	0.2		L58	11	1980	10	13	90	0.02	0.00	0.02	
154	82L093-03		7.4	7.4		B60	3.4	1998	60	4.6	25	5.55	0.00	5.55	Burn, airphoto interpretation 1994, site visit 1999
											Sub-totals	46.60	175.57	222.17	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2001
Total Sub-basin Area (km^2): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
101	82M003	665-1	52.9	52.9		L96	0.3	1997	56	2.54	0	52.90	0.00	52.90	Planted 1997
103	82M003		30.1	30.1		L51-53	17	1994	10	17.7	90	3.01	0.00	3.01	Airphoto interpretation 1994.
104	82M003-215		5.9	5.9		L91	0.25	1993	56	4.73	25	4.43	0.00	4.43	
105	82M003		27.3	27.3		L51-53	27	1994	10	27.7	90	2.73	0.00	2.73	Airphoto interpretation 1994.
107	82M080-60		47.8	47.8		L95	0.25	1997	56	2.49	0	47.80	0.00	47.80	
108	82M003		186.5	186.5		B60	6.5	1999	40	7.3	75	46.63	0.00	46.63	Burn, airphoto interpretation 1994.
113	82M003		3.4	3.4		B60	0	1999	0	0	0	3.40	0.00	3.40	NSR, airphoto interpretation 1994, site visit 1999.
116	82M003		4.8	4.8		B60	7	1999	40	7.8	25	1.20	0.00	1.20	Burn.
117	82M003-222		6.7	6.7		L88,89	0.2	1990	56	6.36	50	3.35	0.00	3.35	Planted 1990.
119	82M003		0.01	0.01		B60	0	1999	0	0	0	0.01	0.00	0.01	NSR, airphoto interpretation 1994, site visit 1999.
121	82L093-01		14.8	14.8		L77,78	3.15	1995	9	3.69	25	11.10	0.00	11.10	
122	82M003		1.6	1.6		B60	0	1998	0	0	0	1.60	0.00	1.60	NSR, airphoto interpretation 1994.
123	82L093-01		2.2	2.2		L77,78	3.15	1995	9	3.69	25	1.65	0.00	1.65	
125	82L093-02		0.8	0.8		L73	4	1987	20	0.8	50	0.40	0.00	0.40	
126	82L093-01		22.1	22.1		L77,78	3.15	1995	9	3.69	25	16.58	0.00	16.58	
127	82L093-01		5	5		L77,78	3.15	1995	9	3.69	25	3.75	0.00	3.75	
											Sub-totals	200.53	0.00	200.53	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2001
Total Sub-basin Area (km^2): 10

Date: Jan 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												200.53	0.00	200.53	Sub-totals from page 1
128	82L093-02		5.1	5.1		L73	4	1987	20	6.8	50	2.55	0.00	2.55	
124	82L093		5.3	5.3		B60	6.5	1999	40	7.3	75	1.33	0.00	1.33	Burn, airphoto interpretation 1994
138	82L093		0.1**	0.05		L58	19	1994	9	19.63	90	0.01	0.00	0.01	**Logged 40% in 1958, airphoto interpretation 1994
137	82L093		24.8**	12.4		L58	19	1994	9	19.63	90	1.24	0.00	1.24	**Logged 40% in 1958, airphoto interpretation 1994
131	82L093		19.8	19.8		B60	9.6	1998	56	11.28	90	1.98	0.00	1.98	Burn, airphoto interpretation 1994
134	82L093		0.8	0.8		B60	9.6	1998	56	11.28	90	0.08	0.00	0.08	Burn, airphoto interpretation 1994
144	82L093		8.8**	4.4		L58	28	1994	40	30.8	90	0.44	0.00	0.44	**Logged 40% in 1958, airphoto interpretation 1994
146	82L093-04		43.6	42.6		L77	13	1994	56	16.92	90	4.26	0.00	4.26	NSR, Airphoto Interpretation 1994, site visit 1999
142	82L093		139.6	139.6		B60	6.5	1999	40	7.3	75	34.90	0.00	34.90	Burn, airphoto interpretation 1994
143	82L093		16.4	16.4		B60	6.5	1999	40	7.3	75	4.10	0.00	4.10	Burn, airphoto interpretation 1994
148	82L093		4.7	4.7		B60	4	1999	40	4.8	25	3.53	0.00	3.53	Burn, airphoto interpretation 1994
151	82L093-03		20.2	20.2		B60	4	1999	60	5.2	50	10.10	0.00	10.10	Burn, Airphoto Interpretation 1994, site visit 1999
149	82L093-05		19.4	19.4		L78	11	1994	40	13.8	90	1.94	0.00	1.94	
153	82L093		4.6	4.6		B60	6.5	1999	40	7.3	75	1.15	0.00	1.15	Burn, airphoto interpretation 1994
157	82L093		12.3	12.3		L	18	1994	60	22.2	90	1.23	0.00	1.23	Logged 50%, airphoto interpretation 1994, unknown harvest date
											Sub-totals	269.45	0.00	269.45	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2001
Total Sub-basin Area (km²): 10

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												269.45	0.00	269.45	Sub-totals from page 2
159	82L093-30		11.6	11.6		L58	11	1980	14	13.94	90	1.16	0.00	1.16	
166	82L093-81		4.3	4.3		L95	0.25	1996	20	1.25	0	4.30	0.00	4.30	
162	82L093-82		4.4	4.4		L95	0.25	1996	20	1.25	0	4.40	0.00	4.40	
164	82L093		8.1**	4.05		L	25	1994	20	26.4	90	0.41	0.00	0.41	**Logged 50%, airphoto interpretation 1994, unknown harvest date
172	82L093-20		7.3	7.3		L82	14	1990	19	16.09	90	0.73	0.00	0.73	
											Sub-totals	280.45	0.00	280.45	
											Total Percent ECA			28.04%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2001
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
136	82L093-10		2.6	2.6		B60	9.6	1999	56	10.72	90	0.26	0.00	0.26	Burn, Airphoto Interpretation 1994, site visit 1999
135	82L093-03		8.1	8.1		B60	6.5	1999	40	7.3	75	2.03	0.00	2.03	Burn, Airphoto Interpretation 1994, site visit 1999
130	82L093-03		9.5	9.5		B60	9.6	1999	56	10.72	90	0.95	0.00	0.95	Burn, Airphoto Interpretation 1994, site visit 1999
133	82L093-10		0.5	0.5		B60	9.6	1999	56	10.72	90	0.05	0.00	0.05	Burn, Airphoto Interpretation 1994, site visit 1999
139	82L093-03		17.4	17.4		B60	6.5	1999	40	7.3	75	4.35	0.00	4.35	Burn, Airphoto Interpretation 1994, site visit 1999
129	82L093-03		45.9	45.9		B60	9.6	1999	56	10.72	90	4.59	0.00	4.59	Burn, Airphoto Interpretation 1994, site visit 1999
145	82L093-03		76.4	76.4		B60	6.5	1999	40	7.3	75	19.10	0.00	19.10	Burn, Airphoto Interpretation 1994, site visit 1999
150	82L093-05		0.02	0.02		L78	11	1994	20	12.4	90	0.00	0.00	0.00	
165	82L093-03		6.2**	3.1		L	25	1994	20	26.4	90	0.31	0.00	0.31	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
161	82L093-06		13.5	13.5		L80	15	1994	20	16.4	90	1.35	0.00	1.35	
163	82L093-02		30.5	30.5		L95	0.25	1996	20	1.25	0	30.50	0.00	30.50	
170	82L093		7**	3.5		L	25	1994	20	26.4	90	0.35	0.00	0.35	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
168	82L093		45.7**	22.85		L	25	1994	20	26.4	90	2.29	0.00	2.29	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
174	82L093-20		27.7	27.7		L82	14	1998	19	16.09	90	2.77	0.00	2.77	Burn, Airphoto Interpretation 1994, site visit 1999
175	82L093		30.7	30.7		L	25	1994	20	26.4	90	3.07	0.00	3.07	Airphoto Interpretation 1994, unknown harvest date
186	82L093-70		28.7	28.7		L94,95	0.2	1997	20	1	0	28.70	0.00	28.70	
											Sub-totals	100.66	0.00	100.66	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2001
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												100.66	0.10	100.66	Sub-totals from page 1
198	82L093		52.2**	26.1		L	30	1994	20	31.4	90	2.61	0.00	2.61	**Logged 30%, Airphoto interp. 1994, unknown harvest date
196	82L093-36		22		22	L73,74	12	1994	20	13.4	90	0.00	2.20	2.20	
193	82L093-26		1.8	1.8		L74	2.8	1991	15	4.3	25	1.35	0.00	1.35	
											Sub-totals	104.62	2.20	106.82	
											Total Percent ECA			18.11%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2001
Total Sub-basin Area (km^2): 27

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
189	82L003		0.3	0.3		L30	16	1994	20	17.4	90	0.03	0.00	0.03	Airphoto interpretation 1994
191	82L093-26		0.3	0.3		L74	2.8	1991	15	4.3	25	0.23	0.00	0.23	
192	82L093-26		2.2	2.2		L74	2.8	1991	15	4.3	25	1.65	0.00	1.65	
198	82L093-37		2.6	2.6		L74	2.2	1991	20	4.2	25	1.95	0.00	1.95	
201	82L093-86		2.9	2.9		L94	0.3	1999	50	1.3	0	2.90	0.00	2.90	NSR on Forest Cover, to be planted in 1999
200	82L093-86		2.3	2.3		L94	0.3	1999	50	1.3	0	2.30	0.00	2.30	NSR on Forest Cover, to be planted in 1999
206	82L093-86		2.5	2.5		L94	0.3	1999	50	1.3	0	2.50	0.00	2.50	NSR on Forest Cover, to be planted in 1999
207	82L093-86		1.2	1.2		L94	0.3	1999	50	1.3	0	1.20	0.00	1.20	NSR on Forest Cover, to be planted in 1999
212	82L093-86		0.5		0.5	L94	0.3	1999	50	1.3	0	0.00	0.50	0.50	NSR on Forest Cover, to be planted in 1999
210	82L093-86		0.1		0.1	L94	0.3	1999	50	1.3	0	0.00	0.10	0.10	NSR on Forest Cover, to be planted in 1999
208	82L093-86		5.5		5.5	L94	0.3	1999	50	1.3	0	0.00	5.50	5.50	NSR on Forest Cover, to be planted in 1999
205	82L093-37		1.2		1.2	L74	2.2	1991	20	4.2	25	0.00	0.90	0.90	
215	82L093-86		0.8		0.8	L94	0.3	1999	50	1.3	0	0.00	0.80	0.80	NSR on Forest Cover, to be planted in 1999
214	82L093-34		9.3		9.3	L74	10	1991	50	15	90	0.00	0.93	0.93	
220	82L093-40		0.06		0.06	L74	9.5	1991	50	14.5	90	0.00	0.01	0.01	
											Sub-totals	12.76	8.74	21.49	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2001
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												12.76	8.74	21.49	Sub-totals from page 1
221	82L093-40		6.2		6.2	L74	9.5	1991	50	14.5	90	0.00	0.62	0.62	
223	82L093-40		0.9		0.9	L74	9.5	1991	50	14.5	90	0.00	0.09	0.09	
225	82L093-40		1.1		1.1	L74	9.5	1991	50	14.5	90	0.00	0.11	0.11	
224	82L093		13.3		13.3		0	1999	0	0	0	0.00	13.30	13.30	BC Hydro right of way
226	82L093		61.9		61.9	L	12	1994	20	13.4	90	0.00	6.19	6.19	Airphoto interpretation 1994, unknown harvest date.
232	82L093		1.1		1.1	L	17	1994	20	18.4	90	0.00	0.11	0.11	Airphoto interpretation 1994, unknown harvest date.
230	82L093		58.7		58.7	L	12	1994	20	13.4	90	0.00	5.87	5.87	Airphoto interpretation 1994, unknown harvest date.
236	82L093-52		3.9		3.9	L71	0	1997	0	0	0	0.00	3.90	3.90	NSR on forest cover.

Sub-totals	12.76	38.93	51.68
Total Percent ECA			19.14%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2001
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
244	82L093		0.7		0.7		0	1999	0	0	0	0.00	0.70	0.70	Urban.
243	82L093		8.1		8.1		0	1999	0	0	0	0.00	8.10	8.10	Urban.
239	82L093		20		20		0	1999	0	0	0	0.00	20.00	20.00	Cultivated.
240	82L093		0.6		0.6		0	1999	0	0	0	0.00	0.60	0.60	Urban.
238	82L093		7.2**		3.6		26	1994	20	27.4	90	0.00	0.36	0.36	**Logged 50%, private property.
237	82L093-50		9.3		9.3	LR4	17.3	1995	20	18.5	90	0.00	0.93	0.93	
235	82L093		16.5		16.5	L	12	1994	20	13.4	90	0.00	1.65	1.65	Airphoto interp. 1994, unknown harvest date.
234	82L093		5.1		5.1	L	12	1994	20	13.4	90	0.00	0.51	0.51	Airphoto interp. 1994, unknown harvest date.
233	82L093		9.2		9.2	L	17	1994	20	18.4	90	0.00	0.92	0.92	Airphoto interp. 1994, unknown harvest date.
231	82L093		0.1		0.1	L	12	1994	20	13.4	90	0.00	0.01	0.01	Airphoto interp. 1994, unknown harvest date.
229	82L093		7.3		7.3	L	12	1994	20	13.4	90	0.00	0.73	0.73	Airphoto interp. 1994, unknown harvest date.
227	82L093		4.4		4.4		0	1999	0	0	0	0.00	4.40	4.40	BC Hydro right of way.
224	82L093		15.6		15.6		0	1999	0	0	0	0.00	15.60	15.60	BC Hydro right of way.
222	82L093-60		8.5		8.5	LR8	0.2	1991	20	2.2	0	0.00	8.50	8.50	
219	82L093-41		29.7		29.7	LR8	2.1	1992	20	3.9	25	0.00	22.28	22.28	
218	82L093-41		16.1		16.1	LR8	2.1	1998	20	2.7	0	0.00	16.10	16.10	
											Sub-totals	0.00	101.39	101.39	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2001
Total Sub-basin Area (km²): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												0.00	101.39	101.39	Sub-totals from page 1
210	82L093-59		8.2		8.2	L88	2.1	1998	20	2.7	0	0.00	8.20	8.20	
197	82L093-35		16.1		16.1	L80	17	1994	20	18.4	90	0.00	1.61	1.61	Airphoto interpretation1994
204	82L093-34		6		6	L81	0.7	1994	20	2.1	0	0.00	6.00	6.00	Polygon is split, small section logged 10% in 1980
199	82L093-58		26.4		26.4	L88	0.2	1993	20	1.8	0	0.00	26.40	26.40	
195	82L093-34		14.2		14.2	L81	0.7	1994	10	1.4	0	0.00	14.20	14.20	
187	82L093-33		21.6		21.6	L77,79	3.8	1995	20	5	50	0.00	10.80	10.80	
183	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5	50	0.00	0.20	0.20	
182	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5	50	0.00	0.20	0.20	
213	82L093-38		5.1		5.1	L74	10	1991	50	15	90	0.00	0.51	0.51	
202	82L093-36		4.5		4.5	L73,74	12	1994	20	13.4	90	0.00	0.45	0.45	
176	82L093-29		7	7		L82	14	1990	19	16.09	90	0.70	0.00	0.70	
179	82L093-31		0.01		0.01	L78,79	0.4	1996	10	0.9	0	0.00	0.01	0.01	
173	82L093-31		11.9	11.9		L78,79	0.4	1996	10	0.9	0	11.90	0.00	11.90	
184	82L093-33		2.2	2.2		L77,79	3.8	1995	20	5	50	1.10	0.00	1.10	
181	82L093-33		17.4	17.4		L77,79	3.8	1995	20	5	50	8.70	0.00	8.70	
190	82L093-34		1.6	1.6		L81	0.7	1994	10	1.4	0	1.60	0.00	1.60	
											Sub-totals	24.00	169.97	193.97	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2001
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												24.00	169.97	193.97	Sub-totals from page 2
185	82L093		1.1	1.1		L98	0.3	1999	20	0.7	0	1.10	0.00	1.10	Will be planted in 1999
180	82L093		0.2	0.2		L98	0.3	1999	20	0.7	0	0.20	0.00	0.20	Will be planted in 1999
177	82L093-32		10.9	10.9		L81	10.8	1995	14	11.64	90	1.09	0.00	1.09	
158	82L093-30		86.8	86.8		L58	11	1980	14	13.94	90	8.68	0.00	8.68	
171	82L093		8	8		L	17	1994	20	18.4	90	0.80	0.00	0.80	Airphoto interpretation, 1994
169	82L093-30		2.5	2.5		L58	11	1980	14	13.94	90	0.25	0.00	0.25	
167	82L093-30		0.1	0.1		L58	11	1980	14	13.94	90	0.01	0.00	0.01	
160	82L093-30		0.2	0.2		L58	11	1980	10	13.1	90	0.02	0.00	0.02	
154	82L093-03		7.4	7.4		B60	3.4	1998	60	5.2	50	3.70	0.00	3.70	Burn, airphoto interpretation 1994, site visit 1999
											Sub-totals	39.85	169.97	209.82	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2002
Total Sub-basin Area (km²): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
							Height (m)	Ref. Year							
			(ha)	(ha)	(ha)				(cm)	(m)	%	(ha)	(ha)	(ha)	
101	82M003	665-1	52.9	52.9		L96	0.3	1997	56	3.1	25	39.68	0.00	39.68	Planted 1997
103	82M003		30.1	30.1		L51-53	17	1994	10	17.8	90	3.01	0.00	3.01	Airphoto interpretation 1994
104	82M003-215		5.9	5.9		L91	0.25	1993	56	5.29	50	2.95	0.00	2.95	
105	82M003		27.3	27.3		L51-53	27	1994	10	27.8	90	2.73	0.00	2.73	Airphoto interpretation 1994
107	82M003-60		47.8	47.8		L95	0.25	1997	56	3.05	25	35.85	0.00	35.85	
108	82M003		186.5	186.5		B60	6.5	1999	40	7.7	75	46.63	0.00	46.63	Burn, airphoto interpretation 1994
115	82M003		3.4	3.4		B60	0	1999	0	0	0	3.40	0.00	3.40	NSR, airphoto interpretation 1994, site visit 1999
116	82M003		4.8	4.8		B60	7	1999	40	8.2	75	1.20	0.00	1.20	Burn
117	82M003-222		6.7	6.7		L88,89	0.2	1990	56	6.92	50	3.35	0.00	3.35	Planted 1990
119	82M003		0.01	0.01		B60	0	1999	0	0	0	0.01	0.00	0.01	NSR, airphoto interpretation 1994, site visit 1999
121	82L093-01		14.8	14.8		L77,78	3.15	1995	9	3.78	25	11.10	0.00	11.10	
122	82M003		1.6	1.6		B60	0	1998	0	0	0	1.60	0.00	1.60	NSR, airphoto interpretation 1994
123	82L093-01		2.2	2.2		L77,78	3.15	1995	9	3.78	25	1.65	0.00	1.65	
125	82L093-02		0.8	0.8		L73	4	1987	20	7	75	0.20	0.00	0.20	
126	82L093-01		22.1	22.1		L77,78	3.15	1995	9	3.78	25	16.58	0.00	16.58	
127	82L093-01		5	5		L77,78	3.15	1995	9	3.78	25	3.75	0.00	3.75	
											Sub-totals	173.68	0.00	173.68	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2002
Total Sub-basin Area (km^2): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												173.68	0.00	173.68	Sub-totals from page 1
128	82L093-02		5.1	5.1		L73	4	1987	20	7	75	1.28	0.00	1.28	
124	82L093		5.3	5.3		B60	6.5	1999	40	7.7	75	1.33	0.00	1.33	Burn, airphoto interpretation 1994
138	82L093		0.1**	0.05		L58	19	1994	9	19.72	90	0.01	0.00	0.01	**Logged 40% in 1958, airphoto interpretation 1994
137	82L093		24.8**	12.4		L58	19	1994	9	19.72	90	1.24	0.00	1.24	**Logged 40% in 1958, airphoto interpretation 1994
131	82L093		19.8	19.8		B60	9.6	1998	56	11.84	90	1.98	0.00	1.98	Burn, airphoto interpretation 1994.
134	82L093		0.8	0.8		B60	9.6	1998	56	11.84	90	0.08	0.00	0.08	Burn, airphoto interpretation 1994.
144	82L093		8.8**	4.4		L58	28	1994	40	31.2	90	0.44	0.00	0.44	**Logged 40% in 1958, airphoto interpretation 1994.
146	82L093-04		43.6	43.6		L77	13	1994	56	17.48	90	4.36	0.00	4.36	NSR, Airphoto Interpretation 1994, site visit 1999.
142	82L093		139.6	139.6		B60	6.5	1999	40	7.7	75	34.90	0.00	34.90	Burn, airphoto interpretation 1994.
143	82L093		16.4	16.4		B60	6.5	1999	40	7.7	75	4.10	0.00	4.10	Burn, airphoto interpretation 1994.
148	82L093		4.7	4.7		B60	4	1999	40	5.2	50	2.35	0.00	2.35	Burn, airphoto interpretation 1994.
151	82L093-03		20.2	20.2		B60	4	1999	60	5.8	50	10.10	0.00	10.10	Burn, Airphoto Interpretation 1994, site visit 1999.
149	82L093-05		19.4	19.4		L78	11	1994	40	14.2	90	1.94	0.00	1.94	
153	82L093		4.6	4.6		B60	6.5	1999	40	7.7	75	1.15	0.00	1.15	Burn, airphoto interpretation 1994.
157	82L093		12.3	12.3		L	18	1994	60	22.8	90	1.23	0.00	1.23	Logged 50%, airphoto interpretation 1994, unknown harvest date.
											Sub-totals	240.15	0.00	240.15	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2002
Total Sub-basin Area (km^2): 10

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												240.15	0.00	240.15	Sub-totals from page 2
159	82L093-30		11.6	11.6		L58	11	1980	14	14.08	90	1.16	0.00	1.16	
166	82L093-81		4.3	4.3		L95	0.25	1996	20	1.45	0	4.30	0.00	4.30	
162	82L093-82		4.4	4.4		L95	0.25	1996	20	1.45	0	4.40	0.00	4.40	
164	82L093		8.1**	4.05		L	25	1994	20	26.6	90	0.41	0.00	0.41	**Logged 50%, airphoto interpretation 1994, unknown harvest date
172	82L093-29		7.3	7.3		L82	14	1990	19	16.28	90	0.73	0.00	0.73	
											Sub-totals	251.15	0.00	251.15	
											Total Percent ECA			25.11%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2002
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
							Height (m)	Ref. Year							
			(ha)	(ha)	(ha)				(cm)	(m)	%	(ha)	(ha)	(ha)	
136	82L093-03		2.6	2.6		B60	9.6	1999	56	11.28	90	0.26	0.00	0.26	Burn, Airphoto Interpretation 1994, site visit 1999
135	82L093-03		8.1	8.1		B60	6.5	1999	40	7.7	75	2.03	0.00	2.03	Burn, Airphoto Interpretation 1994, site visit 1999
130	82L093-03		9.5	9.5		B60	9.6	1999	56	11.28	90	0.95	0.00	0.95	Burn, Airphoto Interpretation 1994, site visit 1999
133	82L093-03		0.5	0.5		B60	9.6	1999	56	11.28	90	0.05	0.00	0.05	Burn, Airphoto Interpretation 1994, site visit 1999
139	82L093-03		17.4	17.4		B60	6.5	1999	40	7.7	75	4.35	0.00	4.35	Burn, Airphoto Interpretation 1994, site visit 1999
129	82L093-03		45.9	45.9		B60	9.6	1999	56	11.28	90	4.59	0.00	4.59	Burn, Airphoto Interpretation 1994, site visit 1999
145	82L093-03		76.4	76.4		B60	6.5	1999	40	7.7	75	19.10	0.00	19.10	Burn, Airphoto Interpretation 1994, site visit 1999
150	82L093-05		0.02	0.02		L78	11	1994	20	12.6	90	0.00	0.00	0.00	
165	82L093-03		6.2**	3.1		L	25	1994	20	26.6	90	0.31	0.00	0.31	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
161	82L093-06		13.5	13.5		L80	15	1994	20	16.6	90	1.35	0.00	1.35	
163	82L093-82		30.5	30.5		L95	0.25	1996	20	1.45	0	30.50	0.00	30.50	
170	82L093		7**	3.5		L	25	1994	20	26.6	90	0.35	0.00	0.35	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
168	82L093		45.7**	22.85		L	25	1994	20	26.6	90	2.29	0.00	2.29	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
174	82L093-29		27.7	27.7		L82	14	1990	19	16.28	90	2.77	0.00	2.77	Burn, Airphoto Interpretation 1994, site visit 1999
175	82L093		30.7	30.7		L	25	1994	20	26.6	90	3.07	0.00	3.07	Airphoto Interpretation 1994, unknown harvest date
180	82L093-70		28.7	28.7		L94,95	0.2	1997	20	1.2	0	28.70	0.00	28.70	
											Sub-totals	100.66	0.00	100.66	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2002
Total Sub-basin Area (km^2): 5.9

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												100.66	0.00	100.66	Sub-totals from page 1
178	82L/093		52.2**	26.1		L	30	1994	20	31.6	90	2.61	0.00	2.61	**Logged 30%, Airphoto interp. 1994, unknown harvest date
196	82L093-36		22		22	L73,74	12	1994	20	13.6	90	0.00	2.20	2.20	
193	82L093-26		1.8	1.8		L74	2.8	1991	15	4.45	25	1.35	0.00	1.35	
											Sub-totals	104.62	2.20	106.82	
											Total Percent ECA			18.11%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2002
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
189	82L093		0.3	0.3		L30	16	1994	20	17.6	90	0.03	0.00	0.03	Airphoto interpretation 1994
191	82L093-26		0.3	0.3		L74	2.8	1991	15	4.45	25	0.23	0.00	0.23	
192	82L093-26		2.2	2.2		L74	2.8	1991	15	4.45	25	1.65	0.00	1.65	
198	82L093-37		2.6	2.6		L74	2.2	1991	20	4.4	25	1.95	0.00	1.95	
201	82L093-86		2.9	2.9		L94	0.3	1999	50	1.8	0	2.90	0.00	2.90	NSR on Forest Cover, to be planted in 1999
200	82L093-86		2.3	2.3		L94	0.3	1999	50	1.8	0	2.30	0.00	2.30	NSR on Forest Cover, to be planted in 1999
206	82L093-86		2.5	2.5		L94	0.3	1999	50	1.8	0	2.50	0.00	2.50	NSR on Forest Cover, to be planted in 1999
207	82L093-86		1.2	1.2		L94	0.3	1999	50	1.8	0	1.20	0.00	1.20	NSR on Forest Cover, to be planted in 1999
212	82L093-86		0.5		0.5	L94	0.3	1999	50	1.8	0	0.00	0.50	0.50	NSR on Forest Cover, to be planted in 1999
216	82L093-86		0.3		0.3	L94	0.3	1999	50	1.8	0	0.00	0.30	0.30	NSR on Forest Cover, to be planted in 1999
208	82L093-86		5.5		5.5	L94	0.3	1999	50	1.8	0	0.00	5.50	5.50	NSR on Forest Cover, to be planted in 1999
205	82L093-37		1.2		1.2	L74	2.2	1991	20	4.4	25	0.00	0.00	0.00	
215	82L093-86		0.8		0.8	L94	0.3	1999	50	1.8	0	0.00	0.80	0.80	NSR on Forest Cover, to be planted in 1999
214	82L093-38		0.3		0.3	L74	10	1991	50	15.5	90	0.00	0.03	0.03	
220	82L093-40		0.06		0.06	L74	9.5	1991	50	15	90	0.00	0.01	0.01	
											Sub-totals	12.76	8.74	21.49	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2002
Total Sub-basin Area (km^2): 2.7

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												12.76	8.74	21.49	Sub-totals from page 1
221	82L093-40		6.2		6.2	L,74	9.5	1991	50	15	90	0.00	0.62	0.62	
223	82L093-40		0.9		0.9	L,74	9.5	1991	50	15	90	0.00	0.09	0.09	
225	82L093-40		1.1		1.1	L,74	9.5	1991	50	15	90	0.00	0.11	0.11	
224	82L093		13.3		13.3		0	1999	0	0	0	0.00	13.30	13.30	BC Hydro right of way
226	82L093		61.9		61.9	L	12	1994	20	13.6	90	0.00	6.19	6.19	Airphoto interpretation 1994, unknown harvest date.
232	82L093		1.1		1.1	L	17	1994	30	18.6	90	0.00	0.11	0.11	Airphoto interpretation 1994, unknown harvest date.
230	82L093		58.7		58.7	L	12	1994	20	13.6	90	0.00	5.87	5.87	Airphoto interpretation 1994, unknown harvest date.
236	82L093-52		3.9		3.9	L,71	0	1997	0	0	0	0.00	3.90	3.90	NSR on forest cover

Sub-totals	12.76	38.93	51.68
Total Percent ECA			19.14%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2002
Total Sub-basin Area (km²): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
244	82L093		0.7		0.7		0	1999	0	0	0	0.00	0.70	0.70	Urban
243	82L093		8.1		8.1		0	1999	0	0	0	0.00	8.10	8.10	Urban
239	82L093		20		20		0	1999	0	0	0	0.00	20.00	20.00	Cultivated
240	82L093		0.6		0.6		0	1999	0	0	0	0.00	0.60	0.60	Urban
238	82L093		7.2**		3.6		26	1994	20	27.6	90	0.00	0.36	0.36	**Logged 50%, private property
237	82L093-50		9.3		9.3	L84	17.3	1995	20	18.7	90	0.00	0.93	0.93	
235	82L093		16.5		16.5	L	12	1994	20	13.6	90	0.00	1.65	1.65	Airphoto interp. 1994, unknown harvest date
234	82L093		5.1		5.1	L	12	1994	20	13.6	90	0.00	0.51	0.51	Airphoto interp. 1994, unknown harvest date
233	82L093		9.2		9.2	L	17	1994	20	18.6	90	0.00	0.92	0.92	Airphoto interp. 1994, unknown harvest date
231	82L093		0.1		0.1	L	12	1994	20	13.6	90	0.00	0.01	0.01	Airphoto interp. 1994, unknown harvest date
229	82L093		7.3		7.3	L	12	1994	20	13.6	90	0.00	0.73	0.73	Airphoto interp. 1994, unknown harvest date
227	82L093		4.4		4.4		0	1999	0	0	0	0.00	4.40	4.40	BC Hydro right of way
228	82L093		15.6		15.6		0	1999	0	0	0	0.00	15.60	15.60	BC Hydro right of way
222	82L093-60		8.5		8.5	L88	0.2	1991	20	2.4	0	0.00	8.50	8.50	
219	82L093-41		29.7		29.7	L78	2.1	1992	20	4.1	25	0.00	22.28	22.28	
218	82L093-41		16.1		16.1	L88	2.1	1998	20	2.9	0	0.00	16.10	16.10	
											Sub-totals	0.00	101.39	101.39	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2002
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												0.00	101.39	101.39	Sub-totals from page 1
210	82L093-59		8.2		8.2	L88	2.1	1998	20	2.9	0	0.00	8.20	8.20	
197	82L093-35		16.1		16.1	L80	17	1994	20	18.6	90	0.00	1.61	1.61	Airphoto interpretation1994.
204	82L093-34		6		6	L81	0.7	1994	20	2.3	0	0.00	6.00	6.00	Polygon is split, small section logged 10% in 1980.
199	82L093-58		26.4		26.4	L88	0.2	1993	20	2	0	0.00	26.40	26.40	
195	82L093-34		14.2		14.2	L81	0.7	1994	10	1.5	0	0.00	14.20	14.20	
187	82L093-33		21.6		21.6	L77,79	3.8	1995	20	5.2	50	0.00	10.80	10.80	
183	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5.2	50	0.00	0.20	0.20	
182	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5.2	50	0.00	0.20	0.20	
213	82L093-38		5.1		5.1	L74	10	1991	50	15.5	90	0.00	0.51	0.51	
202	82L093-36		4.5		4.5	L73,74	12	1994	20	13.6	90	0.00	0.45	0.45	
176	82L093-29		7	7		L82	14	1990	19	16.28	90	0.70	0.00	0.70	
179	82L093-31		0.01		0.01	L78,79	0.4	1996	10	1	0	0.00	0.01	0.01	
173	82L093-31		11.9	11.9		L78,79	0.4	1996	10	1	0	11.90	0.00	11.90	
184	82L093-33		2.2	2.2		L77,79	3.8	1995	20	5.2	50	1.10	0.00	1.10	
181	82L093-33		17.4	17.4		L77,79	3.8	1995	20	5.2	50	8.70	0.00	8.70	
190	82L093-34		1.6	1.6		L81	0.7	1994	10	1.5	0	1.60	0.00	1.60	
											Sub-totals	24.00	169.97	193.97	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2002
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
							Height (m)	Ref. Year	(cm)	(m)	%				
			(ha)	(ha)	(ha)							24.00	169.97	193.97	Sub-totals from page 2
185	82L093		1.1	1.1		L98	0.3	1999	20	0.9	0	1.10	0.00	1.10	Will be planted in 1999
180	82L093		0.2	0.2		L98	0.3	1999	20	0.9	0	0.20	0.00	0.20	Will be planted in 1999
177	82L093-32		10.9	10.9		L81	10.8	1995	14	11.78	90	1.09	0.00	1.09	
158	82L093-30		86.8	86.8		L58	11	1980	14	14.08	90	8.68	0.00	8.68	
171	82L093		8	8		L	17	1994	20	18.6	90	0.80	0.00	0.80	Airphoto interpretation, 1994
169	82L093-30		2.5	2.5		L58	11	1980	14	14.08	90	0.25	0.00	0.25	
167	82L093-30		0.1	0.1		L58	11	1980	14	14.08	90	0.01	0.00	0.01	
160	82L093-30		0.2	0.2		L58	11	1980	10	13.2	90	0.02	0.00	0.02	
154	82L093-03		7.4	7.4		B60	3.4	1998	60	3.8	90	3.70	0.00	3.70	Burn, airphoto interpretation 1994, site visit 1999
											Sub-totals	39.85	169.97	209.82	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2003
Total Sub-basin Area (km²): 10

Date: Jan 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
101	82M003	665-1	52.9	52.9		L96	0.3	1997	56	3.66	25	39.68	0.00	39.68	Planted 1997.
103	82M003		30.1	30.1		L51-53	17	1994	30	17.9	90	5.01	0.00	5.01	Airphoto interpretation 1994.
104	82M003-215		5.9	5.9		L91	0.25	1993	56	5.85	50	2.95	0.00	2.95	
105	82M003		27.3	27.3		L51-53	27	1994	30	27.9	90	2.73	0.00	2.73	Airphoto interpretation 1994.
107	82M003-60		47.8	47.8		L95	0.25	1997	56	3.61	25	35.85	0.00	35.85	
108	82M003		186.5	186.5		B60	6.5	1999	40	8.1	75	46.63	0.00	46.63	Burn, airphoto interpretation 1994.
113	82M003		3.4	3.4		B60	0	1999	0	0	0	3.40	0.00	3.40	NSR, airphoto interpretation 1994, site visit 1999.
116	82M003		4.8	4.8		B60	7	1999	40	8.6	75	1.20	0.00	1.20	Burn.
117	82M003-222		6.7	6.7		L88,89	0.2	1990	56	2.48	25	1.68	0.00	1.68	Planted 1990.
119	82M003		0.01	0.01		B60	0	1999	0	0	0	0.01	0.00	0.01	NSR, airphoto interpretation 1994, site visit 1999.
121	82L093-01		14.8	14.8		L77,78	3.15	1995	9	3.87	25	11.10	0.00	11.10	
122	82M003		1.6	1.6		B60	0	1998	0	0	0	1.60	0.00	1.60	NSR, airphoto interpretation 1994.
123	82L093-01		2.2	2.2		L77,78	3.15	1995	9	3.87	25	1.65	0.00	1.65	
125	82L093-02		0.8	0.8		L73	4	1987	20	7.2	75	0.20	0.00	0.20	
126	82L093-01		22.1	22.1		L77,78	3.15	1995	9	3.87	25	16.58	0.00	16.58	
127	82L093-01		5	5		L77,78	3.15	1995	9	3.87	25	3.75	0.00	3.75	
											Sub-totals	172.00	0.00	172.00	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2003
Total Sub-basin Area (km^2): 10

Date: Jan 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												172.00	0.00	172.00	Sub-totals from page 1
125	82L093-02		5.1	5.1		L73	4	1987	20	7.2	75	1.28	0.00	1.28	
124	82L093		5.3	5.3		B60	6.5	1999	40	8.1	75	1.33	0.00	1.33	Burn, airphoto interpretation 1994
138	82L093		0.1**	0.05		L58	19	1994	9	19.81	90	0.01	0.00	0.01	**Logged 40% in 1958, airphoto interpretation 1994
137	82L093		24.8**	12.4		L58	19	1994	9	19.81	90	1.24	0.00	1.24	**Logged 40% in 1958, airphoto interpretation 1994
133	82L093		19.8	19.8		B60	9.6	1998	56	12.4	90	1.98	0.00	1.98	Burn, airphoto interpretation 1994.
134	82L093		0.8	0.8		B60	9.6	1998	56	12.4	90	0.08	0.00	0.08	Burn, airphoto interpretation 1994.
144	82L093		8.8**	4.4		L58	28	1994	40	31.6	90	0.44	0.00	0.44	**Logged 40% in 1958, airphoto interpretation 1994
146	82L093-04		43.6	43.6		L77	13	1994	56	18.04	90	4.36	0.00	4.36	NSR, Airphoto Interpretation 1994, site visit 1999.
142	82L093		139.6	139.6		B60	6.5	1999	40	8.1	75	34.90	0.00	34.90	Burn, airphoto interpretation 1994
143	82L093		16.4	16.4		B60	6.5	1999	40	8.1	75	4.10	0.00	4.10	Burn, airphoto interpretation 1994
148	82L093		4.7	4.7		B60	4	1999	40	5.6	50	2.35	0.00	2.35	Burn, airphoto interpretation 1994
151	82L093-03		20.2	20.2		B60	4	1999	60	6.4	50	10.10	0.00	10.10	Burn, Airphoto Interpretation 1994, site visit 1999.
149	82L093-05		19.4	19.4		L78	11	1994	40	14.6	90	1.94	0.00	1.94	
153	82L093		4.6	4.6		B60	6.5	1999	40	8.1	75	1.15	0.00	1.15	Burn, airphoto interpretation 1994
157	82L093		12.3	12.3		L	18	1994	60	23.4	90	1.23	0.00	1.23	Logged 50%, airphoto interpretation 1994, unknown harvest date.
											Sub-totals	238.48	0.00	238.48	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2003
Total Sub-basin Area (km^2): 10

Date: Jan. 2004

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												238.48	0.00	238.48	Sub-totals from page 2
159	82L093-30		11.6	11.6		L58	11	1980	14	14.22	90	1.16	0.00	1.16	
166	82L093-81		4.3	4.3		L95	0.25	1996	29	1.65	0	4.30	0.00	4.30	
162	82L093-82		4.4	4.4		L95	0.25	1996	29	1.65	0	4.40	0.00	4.40	
164	82L093		8.1**	4.05		L	25	1994	20	26.8	90	0.41	0.00	0.41	**Logged 30%, airphoto interpretation 1994, unknown harvest date.
172	82L093-29		7.3	7.3		L82	14	1990	19	16.47	90	0.73	0.00	0.73	

Sub-totals	249.47	0.00	249.47
Total Percent ECA			24.95%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2003
Total Sub-basin Area (km^2): 5.9

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
136	82L093-03		2.6	2.6		B60	9.6	1999	56	11.84	90	0.26	0.00	0.26	Burn, Airphoto Interpretation 1994, site visit 1999
135	82L093-03		8.1	8.1		B60	6.5	1999	40	8.1	75	2.03	0.00	2.03	Burn, Airphoto Interpretation 1994, site visit 1999
130	82L093-03		9.5	9.5		B60	9.6	1999	56	11.84	90	0.95	0.00	0.95	Burn, Airphoto Interpretation 1994, site visit 1999
133	82L093-03		0.5	0.5		B60	9.6	1999	56	11.84	90	0.05	0.00	0.05	Burn, Airphoto Interpretation 1994, site visit 1999
139	82L093-03		17.4	17.4		B60	6.5	1999	40	8.1	75	4.35	0.00	4.35	Burn, Airphoto Interpretation 1994, site visit 1999
129	82L093-03		45.9	45.9		B60	9.6	1999	56	11.84	90	4.59	0.00	4.59	Burn, Airphoto Interpretation 1994, site visit 1999
145	82L093-03		76.4	76.4		B60	6.5	1999	40	8.1	75	19.10	0.00	19.10	Burn, Airphoto Interpretation 1994, site visit 1999
150	82L093-05		0.02	0.02		L78	11	1994	20	12.8	90	0.00	0.00	0.00	
165	82L093-03		6.2**	3.1		L	25	1994	20	26.8	90	0.31	0.00	0.31	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
161	82L093-06		13.5	13.5		L80	15	1994	20	16.8	90	1.35	0.00	1.35	
163	82L093-82		30.5	30.5		L95	0.25	1996	20	1.65	0	30.50	0.00	30.50	
170	82L093		7**	3.5		L	25	1994	20	26.8	90	0.35	0.00	0.35	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
168	82L093		45.7**	22.85		L	25	1994	20	26.8	90	2.29	0.00	2.29	**Logged 30%, Airphoto Interp. 1994, unknown harvest date.
174	82L093-29		27.7	27.7		L82	14	1999	19	16.47	90	2.77	0.00	2.77	Burn, Airphoto Interpretation 1994, site visit 1999
175	82L093		30.7	30.7		L	25	1994	20	26.8	90	3.07	0.00	3.07	Airphoto Interpretation 1994, unknown harvest date.
186	82L093-70		28.7	28.7		L94,95	0.2	1997	20	1.4	0	28.70	0.00	28.70	
											Sub-totals	100.66	0.00	100.66	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2003
Total Sub-basin Area (km²): 5.9

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												100.66	0.00	100.66	Sub-totals from page 1
178	821/093		52.2**	26.1		L	30	1994	20	31.8	90	2.61	0.00	2.61	**Logged 50%, Airphoto interp. 1994, unknown harvest date
196	821/093-36		22		22	L,73,74	12	1994	20	13.8	90	0.00	2.20	2.20	
193	821/093-26		1.8	1.8		L,74	2.8	1993	15	4.6	25	1.35	0.00	1.35	
											Sub-totals	104.62	2.20	106.82	
											Total Percent ECA			18.11%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2003
Total Sub-basin Area (km^2): 2.7

Date: Jan. 2004

GIS Map Ref.#	Map sheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
							Height (m)	Ref. Year	(cm)	(m)	%				
			(ha)	(ha)	(ha)							(ha)	(ha)	(ha)	
189	82L093		0.3	0.3		L30	16	1994	20	17.8	90	0.03	0.00	0.03	Airphoto interpretation 1994
191	82L093-26		0.3	0.3		L74	2.8	1991	15	4.6	25	0.23	0.00	0.23	
192	82L093-26		2.2	2.2		L74	2.8	1991	15	4.6	25	1.65	0.00	1.65	
198	82L093-37		2.6	2.6		L74	2.2	1991	20	4.6	25	1.95	0.00	1.95	
201	82L093-86		2.9	2.9		L94	0.3	1999	50	2.3	0	2.90	0.00	2.90	NSR on Forest Cover, to be planted in 1999
200	82L093-86		2.3	2.3		L94	0.3	1999	50	2.3	0	2.30	0.00	2.30	NSR on Forest Cover, to be planted in 1999
206	82L093-86		2.5	2.5		L94	0.3	1999	50	2.3	0	2.50	0.00	2.50	NSR on Forest Cover, to be planted in 1999
207	82L093-86		1.2	1.2		L94	0.3	1999	50	2.3	0	1.20	0.00	1.20	NSR on Forest Cover, to be planted in 1999
212	82L093-86		0.5		0.5	L94	0.3	1999	50	2.3	0	0.00	0.50	0.50	NSR on Forest Cover, to be planted in 1999
216	82L093-86		0.1		0.1	L94	0.3	1999	50	2.3	0	0.00	0.10	0.10	NSR on Forest Cover, to be planted in 1999
208	82L093-86		5.5		5.5	L94	0.3	1999	50	2.3	0	0.00	5.50	5.50	NSR on Forest Cover, to be planted in 1999
205	82L093-37		1.2		1.2	L74	2.2	1991	20	4.6	25	0.00	0.90	0.90	
215	82L093-86		0.8		0.8	L94	0.3	1999	50	2.3	0	0.00	0.80	0.80	NSR on Forest Cover, to be planted in 1999
214	82L093-38		0.3		0.3	L74	10	1991	50	16	90	0.00	0.03	0.03	
220	82L093-40		0.06		0.06	L74	9.5	1991	50	15.5	90	0.00	0.01	0.01	
											Sub-totals	12.76	8.74	21.49	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2003
Total Sub-basin Area (km²): 2.7

Date: Jan. 2004

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												12.76	8.74	21.49	Sub-totals from page 1
221	82L093-40		6.2		6.2	L74	9.5	1991	50	15.5	90	0.00	0.62	0.62	
223	82L093-40		0.9		0.9	L74	9.5	1991	50	15.5	90	0.00	0.09	0.09	
225	82L093-40		1.1		1.1	L74	9.5	1991	50	15.5	90	0.00	0.11	0.11	
224	82L093		13.3		13.3		0	1999	0	0	0	0.00	13.30	13.30	BC Hydro right of way
226	82L093		61.9		61.9	L	12	1994	20	13.8	90	0.00	6.19	6.19	Airphoto interpretation 1994, unknown harvest date
232	82L093		1.1		1.1	L	17	1994	20	18.8	90	0.00	0.11	0.11	Airphoto interpretation 1994, unknown harvest date
230	82L093		58.7		58.7	L	12	1994	20	13.8	90	0.00	5.87	5.87	Airphoto interpretation 1994, unknown harvest date
236	82L093-52		3.9		3.9	L71	0	1997	0	0	0	0.00	3.90	3.90	NSR on forest cover
											Sub-totals	12.76	38.93	51.68	
											Total Percent ECA			19.14%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2003
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
244	82L093		0.7		0.7		0	1999	0	0	0	0.00	0.70	0.70	Urban
243	82L093		8.1		8.1		0	1999	0	0	0	0.00	8.10	8.10	Urban
239	82L093		20		20		0	1999	0	0	0	0.00	20.00	20.00	Cultivated
240	82L093		0.6		0.6		0	1999	0	0	0	0.00	0.60	0.60	Urban
238	82L093		7.2**		3.6		26	1994	20	27.8	90	0.00	0.36	0.36	**Logged 50%, private property
237	82L093-30		9.3		9.3	L84	17.3	1995	20	18.9	90	0.00	0.93	0.93	
235	82L093		16.5		16.5	L	12	1994	20	13.8	90	0.00	1.65	1.65	Airphoto interp. 1994, unknown harvest date
234	82L093		5.1		5.1	L	12	1994	20	13.8	90	0.00	0.51	0.51	Airphoto interp. 1994, unknown harvest date
233	82L093		9.2		9.2	L	17	1994	20	18.8	90	0.00	0.92	0.92	Airphoto interp. 1994, unknown harvest date
231	82L093		0.1		0.1	L	12	1994	20	13.8	90	0.00	0.01	0.01	Airphoto interp. 1994, unknown harvest date
229	82L093		7.3		7.3	L	12	1994	20	13.8	90	0.00	0.73	0.73	Airphoto interp. 1994, unknown harvest date
227	82L093		4.4		4.4		0	1999	0	0	0	0.00	4.40	4.40	BC Hydro right of way
228	82L093		15.6		15.6		0	1999	0	0	0	0.00	15.60	15.60	BC Hydro right of way
222	82L093-60		8.5		8.5	L88	0.2	1991	20	2.6	0	0.00	8.50	8.50	
219	82L093-41		29.7		29.7	L78	2.1	1992	20	4.3	25	0.00	22.28	22.28	
218	82L093-41		16.1		16.1	L88	2.1	1998	20	3.1	25	0.00	12.08	12.08	
											Sub-totals	0.00	97.36	97.36	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2003
Total Sub-basin Area (km²): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												0.00	97.36	97.36	Sub-totals from page 1
210	82L093-59		8.2		8.2	L88	2.1	1958	20	3.1	25	0.00	6.15	6.15	
197	82L093-35		16.1		16.1	L80	17	1994	20	18.8	90	0.00	1.61	1.61	Airphoto interpretation 1994.
204	82L093-34		6		6	L81	0.7	1994	20	2.5	0	0.00	6.00	6.00	Polygon is split, small section logged 50% in 1980
199	82L093-58		26.4		26.4	L88	0.2	1993	20	2.2	0	0.00	26.40	26.40	
195	82L093-34		14.2		14.2	L81	0.7	1994	10	1.6	0	0.00	14.20	14.20	
187	82L093-33		21.6		21.6	L77,79	3.8	1995	20	5.4	50	0.00	10.80	10.80	
183	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5.4	50	0.00	0.20	0.20	
182	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5.4	50	0.00	0.20	0.20	
213	82L093-38		5.1		5.1	L74	10	1991	50	16	90	0.00	0.51	0.51	
202	82L093-36		4.5		4.5	L73,74	12	1994	20	13.8	90	0.00	0.45	0.45	
176	82L093-29		7	7		L82	14	1990	39	16.47	90	0.70	0.00	0.70	
179	82L093-31		0.01		0.01	L78,79	0.4	1996	10	1.1	0	0.00	0.01	0.01	
173	82L093-31		11.9	11.9		L78,79	0.4	1996	10	1.1	0	11.90	0.00	11.90	
184	82L093-33		2.2	2.2		L77,79	3.8	1995	20	5.4	50	1.10	0.00	1.10	
181	82L093-33		17.4	17.4		L77,79	3.8	1995	20	5.4	50	8.70	0.00	8.70	
190	82L093-34		1.6	1.6		L81	0.7	1994	10	1.6	0	1.60	0.00	1.60	
											Sub-totals	24.00	163.89	187.89	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2003
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												24.00	163.89	187.89	Sub-totals from page 2
185	82L093		1.1	1.1		L98	0.3	1999	20	1.1	0	1.10	0.00	1.10	Will be planted in 1999.
180	82L093		0.2	0.2		L98	0.3	1999	20	1.1	0	0.20	0.00	0.20	Will be planted in 1999.
177	82L093-32		10.9	10.9		L81	10.8	1993	14	13.92	90	1.09	0.00	1.09	
158	82L093-30		86.8	86.8		L58	11	1980	14	14.22	90	8.68	0.00	8.68	
171	82L093		8	8		L	17	1994	20	18.8	90	0.80	0.00	0.80	Airphoto interpretation, 1994
169	82L093-30		2.5	2.5		L58	11	1980	14	14.22	90	0.25	0.00	0.25	
167	82L093-30		0.1	0.1		L58	11	1980	14	14.22	90	0.01	0.00	0.01	
160	82L093-30		0.2	0.2		L58	11	1980	10	13.3	90	0.02	0.00	0.02	
154	82L093-03		7.4	7.4		B60	3.4	1998	60	6.4	50	3.70	0.00	3.70	Burn, airphoto interpretation 1998, site visit 1999.
											Sub-totals	39.85	163.89	203.74	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2004
Total Sub-basin Area (km²): 10

Date: Jan. 2000

GIS Map Ref #	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
							Height (m)	Ref. Year							
			(ha)	(ha)	(ha)				(cm)	(m)	%	(ha)	(ha)	(ha)	
101	82M003	665-1	52.9	52.9		L96	0.3	1997	56	4.22	25	39.68	0.00	39.68	Planted 1997
103	82M003		30.1	30.1		L51-53	17	1994	10	18	90	3.01	0.00	3.01	Airphoto interpretation 1994
104	82M003-215		5.9	5.9		L91	0.25	1993	56	6.41	50	2.95	0.00	2.95	
105	82M003		27.3	27.3		L51-53	27	1994	10	28	90	2.73	0.00	2.73	Airphoto interpretation 1994
107	82M003-60		47.8	47.8		L95	0.25	1997	56	4.17	25	35.85	0.00	35.85	
108	82M003		186.5	186.5		B60	6.5	1999	40	8.5	75	46.63	0.00	46.63	Burn, airphoto interpretation 1994
113	82M003		3.4	3.4		B60	0	1999	0	0	0	3.40	0.00	3.40	NSR, airphoto interpretation 1994, site visit 1999
116	82M003		4.8	4.8		B60	7	1999	40	9	90	0.48	0.00	0.48	Burn
117	82M003-222		6.7	6.7		L88,89	0.2	1990	56	8.04	75	1.68	0.00	1.68	Planted 1990
119	82M003		0.01	0.01		B60	0	1999	0	0	0	0.00	0.00	0.00	NSR, airphoto interpretation 1994, site visit 1999
121	82L093-01		14.8	14.8		L77,78	3.15	1995	9	3.96	25	11.10	0.00	11.10	
122	82M003		1.6	1.6		B60	0	1998	0	0	0	1.60	0.00	1.60	NSR, airphoto interpretation 1994
123	82L093-02		2.2	2.2		L77,78	3.15	1995	9	3.96	25	1.65	0.00	1.65	
125	82L093-02		0.8	0.8		L73	4	1987	20	7.4	75	0.20	0.00	0.20	
126	82L093-01		22.1	22.1		L77,78	3.15	1995	9	3.96	25	16.58	0.00	16.58	
127	82L093-01		5	5		L77,78	3.15	1995	9	3.96	25	3.75	0.00	3.75	
											Sub-totals	171.28	0.00	171.28	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2004
Total Sub-basin Area (km²): 30

Date: Jan. 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												171.28	0.00	171.28	Sub-totals from page 1
128	82L093-02		5.1	5.1		L73	4	1987	20	7.4	75	1.28	0.00	1.28	
124	82L093		5.3	5.3		B60	6.5	1999	40	8.5	75	1.33	0.00	1.33	Burn, airphoto interpretation 1994
138	82L093		0.1**	0.05		L58	19	1994	9	19.9	90	0.01	0.00	0.01	**Logged 40% in 1958, airphoto interpretation 1994
137	82L093		24.8**	12.4		L58	19	1994	9	19.9	90	1.24	0.00	1.24	**Logged 40% in 1958, airphoto interpretation 1994
131	82L093		19.8	19.8		B60	9.6	1998	56	12.96	90	1.98	0.00	1.98	Burn, airphoto interpretation 1994
134	82L093		0.8	0.8		B60	9.6	1998	56	12.96	90	0.08	0.00	0.08	Burn, airphoto interpretation 1994
144	82L093		8.8**	4.4		L58	28	1994	40	32	90	0.44	0.00	0.44	**Logged 40% in 1958, airphoto interpretation 1994
146	82L093-04		43.6	43.6		L77	13	1994	56	18.6	90	4.36	0.00	4.36	NSR, Airphoto Interpretation 1994, site visit 1999
142	82L093		139.6	139.6		B60	6.5	1999	40	8.5	75	34.90	0.00	34.90	Burn, airphoto interpretation 1994
143	82L093		16.4	16.4		B60	6.5	1999	40	8.5	75	4.10	0.00	4.10	Burn, airphoto interpretation 1994
148	82L093		4.7	4.7		B60	4	1999	40	6	50	2.35	0.00	2.35	Burn, airphoto interpretation 1994
151	82L093-03		20.2	20.2		B60	4	1999	60	7	75	5.05	0.00	5.05	Burn, Airphoto Interpretation 1994, site visit 1999
149	82L093-05		19.4	19.4		L78	11	1994	40	15	90	1.94	0.00	1.94	
155	82L093		4.6	4.6		B60	6.5	1999	40	8.5	75	1.15	0.00	1.15	Burn, airphoto interpretation 1994
157	82L093		12.3	12.3		L	18	1994	60	24	90	1.23	0.00	1.23	Logged 30%, airphoto interpretation 1994, unknown harvest date
											Sub-totals	232.71	0.00	232.71	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Upper

Projection Date: 2004
Total Sub-basin Area (km²): 10

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												232.71	0.00	232.71	Sub-totals from page 2
159	82L093-30		11.6	11.6		L58	11	1980	14	14.36	90	1.16	0.00	1.16	
166	82L093-81		4.3	4.3		L95	0.25	1996	20	1.85	0	4.30	0.00	4.30	
162	82L093-82		4.4	4.4		L95	0.25	1996	20	1.85	0	4.40	0.00	4.40	
164	82L093		4.1**	4.05		L	25	1994	20	27	90	0.41	0.00	0.41	**Logged 30%, airphoto interpretation 1994, unknown harvest date
172	82L093-29		7.3	7.3		L82	14	1990	19	16.66	90	0.73	0.00	0.73	

Sub-totals	243.70	0.00	243.70
Total Percent ECA			24.37%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2004
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
136	82L093-03		2.6	2.6		B60	9.6	1999	56	12.4	90	0.26	0.00	0.26	Burn, Airphoto Interpretation 1994, site visit 1999
135	82L093-03		8.1	8.1		B60	6.5	1999	40	8.5	75	2.03	0.00	2.03	Burn, Airphoto Interpretation 1994, site visit 1999
130	82L093-03		9.5	9.5		B60	9.6	1999	56	12.4	90	0.95	0.00	0.95	Burn, Airphoto Interpretation 1994, site visit 1999
133	82L093-03		0.5	0.5		B60	9.6	1999	56	12.4	90	0.05	0.00	0.05	Burn, Airphoto Interpretation 1994, site visit 1999
139	82L093-03		17.4	17.4		B60	6.5	1999	40	8.5	75	4.35	0.00	4.35	Burn, Airphoto Interpretation 1994, site visit 1999
129	82L093-03		45.9	45.9		B60	9.6	1999	56	12.4	90	4.59	0.00	4.59	Burn, Airphoto Interpretation 1994, site visit 1999
145	82L093-03		76.4	76.4		B60	6.5	1999	40	8.5	75	19.10	0.00	19.10	Burn, Airphoto Interpretation 1994, site visit 1999
150	82L093-05		0.02	0.02		L78	11	1994	20	13	90	0.00	0.00	0.00	
165	82L093-03		6.2**	3.1		L	25	1994	20	27	90	0.31	0.00	0.31	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
161	82L093-06		13.5	13.5		L80	15	1994	20	17	90	1.35	0.00	1.35	
163	82L093-82		30.5	30.5		L95	0.25	1996	20	1.85	0	30.50	0.00	30.50	
170	82L093		7**	3.5		L	25	1994	20	27	90	0.35	0.00	0.35	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
168	82L093		45.7**	22.85		L	25	1994	20	27	90	2.29	0.00	2.29	**Logged 30%, Airphoto Interp. 1994, unknown harvest date
174	82L093-29		27.7	27.7		L82	14	1990	19	16.66	90	2.77	0.00	2.77	Burn, Airphoto Interpretation 1994, site visit 1999
175	82L093		30.7	30.7		L	25	1994	20	27	90	3.07	0.00	3.07	Airphoto Interpretation 1994, unknown harvest date
186	82L093-30		28.7	28.7		L94,95	0.2	1997	20	1.6	0	28.70	0.00	28.70	
											Sub-totals	100.66	0.00	100.66	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
East

Projection Date: 2004
Total Sub-basin Area (km^2): 5.9

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												100.66	0.00	100.66	Sub-totals from page 1
178	82L093		52.2**	26.1		L	30	1994	20	32	90	2.61	0.00	2.61	**Lagged 30%, Airphoto interp. 1994, unknown harvest date
196	82L093-36		22		22	L75,74	12	1994	20	14	90	0.00	2.20	2.20	
193	82L093-26		1.8	1.8		L74	28	1991	15	4.75	25	1.35	0.00	1.35	
											Sub-totals	104.62	2.20	106.82	
											Total Percent ECA			18.11%	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2004
Total Sub-basin Area (km^2): 2.7

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
189	82L093		0.3	0.3		L30	16	1994	20	18	90	0.03	0.00	0.03	Airphoto interpretation 1994
191	82L093-26		0.3	0.3		L74	2.8	1991	15	4.75	25	0.23	0.00	0.23	
192	82L093-26		2.2	2.2		L74	2.8	1991	15	4.75	25	1.65	0.00	1.65	
198	82L093-37		2.6	2.6		L74	2.2	1991	20	4.8	25	1.95	0.00	1.95	
201	82L093-86		2.9	2.9		L94	0.3	1999	50	2.8	0	2.90	0.00	2.90	NSR on Forest Cover, to be planted in 1999
200	82L093-86		2.3	2.3		L94	0.3	1999	50	2.8	0	2.30	0.00	2.30	NSR on Forest Cover, to be planted in 1999
206	82L093-86		2.5	2.5		L94	0.3	1999	50	2.8	0	2.50	0.00	2.50	NSR on Forest Cover, to be planted in 1999
207	82L093-86		1.2	1.2		L94	0.3	1999	50	2.8	0	1.20	0.00	1.20	NSR on Forest Cover, to be planted in 1999
212	82L093-86		0.5		0.5	L94	0.3	1999	50	2.8	0	0.00	0.50	0.50	NSR on Forest Cover, to be planted in 1999
216	82L093-86		0.1		0.1	L94	0.3	1999	50	2.8	0	0.00	0.10	0.10	NSR on Forest Cover, to be planted in 1999
208	82L093-86		5.5		5.5	L94	0.3	1999	50	2.8	0	0.00	5.50	5.50	NSR on Forest Cover, to be planted in 1999
205	82L093-37		1.2		1.2	L74	2.2	1991	20	4.8	25	0.00	0.90	0.90	
215	82L093-86		0.8		0.8	L94	0.3	1999	50	2.8	0	0.00	0.80	0.80	NSR on Forest Cover, to be planted in 1999
214	82L093-38		9.3		9.3	L74	10	1991	50	16.5	90	0.00	0.93	0.93	
220	82L093-40		0.06		0.06	L74	9.5	1991	50	16	90	0.00	0.01	0.01	
											Sub-totals	12.76	8.74	21.49	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Ponds

Projection Date: 2004
Total Sub-basin Area (km²): 2.7

Date: Jan 2000

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Rel. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												12.76	8.74	21.49	Sub-totals from page 1
221	82L093-40		6.2		6.2	L74	9.5	1991	50	16	90	0.00	0.62	0.62	
223	82L093-40		0.9		0.9	L74	9.5	1991	50	16	90	0.00	0.09	0.09	
225	82L093-40		1.1		1.1	L74	9.5	1991	50	16	90	0.00	0.11	0.11	
224	82L093		133		133		0	1999	0	0	0	0.00	13.30	13.30	BC Hydro right of way
226	82L093		61.9		61.9	L	12	1994	20	14	90	0.00	6.19	6.19	Airphoto interpretation 1994, unknown harvest date.
232	82L093		1.1		1.1	L	17	1994	20	19	90	0.00	0.11	0.11	Airphoto interpretation 1994, unknown harvest date.
230	82L093		58.7		58.7	L	12	1994	20	14	90	0.00	5.87	5.87	Airphoto interpretation 1994, unknown harvest date.
236	82L093-52		3.9		3.9	L71	0	1997	0	0	0	0.00	3.90	3.90	NSR on forest cover.

Sub-totals	12.76	38.93	51.68
Total Percent ECA			39.14%

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2004
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
							Height (m)	Ref. Year							
			(ha)	(ha)	(ha)				(cm)	(m)	%	(ha)	(ha)	(ha)	
244	82L093		0.7		0.7		0	1999	0	0	0	0.00	0.70	0.70	Urban
243	82L093		8.1		8.1		0	1999	0	0	0	0.00	8.10	8.10	Urban
239	82L093		20		20		0	1999	0	0	0	0.00	20.00	20.00	Cultivated
240	82L093		0.6		0.6		0	1999	0	0	0	0.00	0.60	0.60	Urban
238	82L093		7.2**		3.6		26	1994	20	28	90	0.00	0.36	0.36	**Logged 50% private property.
237	82L093-50		9.3		9.3	L84	17.3	1995	20	19.1	90	0.00	0.93	0.93	
235	82L093		16.5		16.5	L	12	1994	20	14	90	0.00	1.65	1.65	Airphoto interp. 1994, unknown harvest date.
234	82L093		5.1		5.1	L	12	1994	20	14	90	0.00	0.51	0.51	Airphoto interp. 1994, unknown harvest date.
233	82L093		9.2		9.2	L	17	1994	20	19	90	0.00	0.92	0.92	Airphoto interp. 1994, unknown harvest date.
231	82L093		0.1		0.1	L	12	1994	20	14	90	0.00	0.01	0.01	Airphoto interp. 1994, unknown harvest date.
229	82L093		7.3		7.3	L	12	1994	20	14	90	0.00	0.73	0.73	Airphoto interp. 1994, unknown harvest date.
227	82L093		4.4		4.4		0	1999	0	0	0	0.00	4.40	4.40	BC Hydro right of way.
228	82L093		15.6		15.6		0	1999	0	0	0	0.00	15.60	15.60	BC Hydro right of way.
222	82L093-60		8.5		8.5	L88	0.2	1993	20	2.8	0	0.00	8.50	8.50	
219	82L093-41		29.7		29.7	L78	2.1	1992	20	4.5	25	0.00	22.28	22.28	
218	82L093-41		16.1		16.1	L88	2.1	1998	20	3.3	25	0.00	12.08	12.08	
											Sub-totals	0.00	97.36	97.36	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2004
Total Sub-basin Area (km²): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												0.00	97.36	97.36	Sub-totals from page 1
210	82L093-59		8.2		8.2	L88	2.1	1998	20	3.3	25	0.00	6.15	6.15	
197	82L093-35		16.1		16.1	L80	17	1994	20	19	90	0.00	1.61	1.61	Airphoto interpretation1994
204	82L093-34		6		6	L81	0.7	1994	20	2.7	0	0.00	6.00	6.00	Polygon is split, small section logged 30% in 1980
199	82L093-58		26.4		26.4	L88	0.2	1993	20	2.4	0	0.00	26.40	26.40	
195	82L093-34		14.2		14.2	L81	0.7	1994	10	1.7	0	0.00	14.20	14.20	
187	82L093-53		21.6		21.6	L77,79	3.8	1995	20	5.6	50	0.00	10.80	10.80	
183	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5.6	50	0.00	0.20	0.20	
182	82L093-33		0.4		0.4	L77,79	3.8	1995	20	5.6	50	0.00	0.20	0.20	
213	82L093-38		5.1		5.1	L74	10	1991	50	16.5	90	0.00	0.51	0.51	
202	82L093-36		4.5		4.5	L73,74	12	1994	20	14	90	0.00	0.45	0.45	
176	82L093-29		7	7		L82	14	1990	19	16.66	90	0.70	0.00	0.70	
179	82L093-31		0.01		0.01	L78,79	0.4	1996	10	1.2	0	0.00	0.01	0.01	
173	82L093-31		11.9	11.9		L78,79	0.4	1996	10	1.2	0	11.90	0.00	11.90	
184	82L093-33		2.2	2.2		L77,79	3.8	1995	20	5.6	50	1.10	0.00	1.10	
181	82L093-33		17.4	17.4		L77,79	3.8	1995	20	5.6	50	8.70	0.00	8.70	
190	82L093-34		1.6	1.6		L81	0.7	1994	10	1.7	0	1.60	0.00	1.60	
											Sub-totals	24.00	163.89	187.89	

Corning Creek: Existing Conditions
Equivalent Clearcut Area Worksheet
Residual

Projection Date: 2004
Total Sub-basin Area (km^2): 12.3

GIS Map Ref.#	Mapsheet/Opening Number	CP/Block	Total Area	Area Above H60	Area Below H60	Year Harvested	Main Canopy		Average Leader Growth	Projected Canopy Height	Percent Recovery	ECA Above H60	ECA Below H60	Total ECA	Comments
			(ha)	(ha)	(ha)		Height (m)	Ref. Year	(cm)	(m)	%	(ha)	(ha)	(ha)	
												24.00	163.89	187.89	Sub-totals from page 2
185	82L093		1.1	1.1		1998	0.5	1999	20	1.3	0	1.10	0.00	1.10	Will be planted in 1999
180	82L093		0.2	0.2		1998	0.5	1999	20	1.3	0	0.20	0.00	0.20	Will be planted in 1999
177	82L093-32		10.9	10.9		1981	10.8	1995	14	12.06	90	1.09	0.00	1.09	
158	82L093-30		86.8	86.8		1958	11	1980	14	14.36	90	8.68	0.00	8.68	
171	82L093		8	8		L	17	1994	20	19	90	0.80	0.00	0.80	Airphoto interpretation, 1994
169	82L093-30		2.5	2.5		1958	11	1980	14	14.36	90	0.25	0.00	0.25	
167	82L093-30		0.1	0.1		1958	11	1980	14	14.36	90	0.01	0.00	0.01	
160	82L093-30		0.2	0.2		1958	11	1980	10	13.4	90	0.02	0.00	0.02	
154	82L093-03		7.4	7.4		B60	3.4	1998	60	7	75	1.85	0.00	1.85	Burn, airphoto interpretation 1994, site visit 1999
											Sub-totals	38.00	163.89	201.89	

APPENDIX D

Licensed Water Users
on Corning (Lee) Creek and Fraser Brook

British Columbia Ministry of Environment, Lands & Parks

Water Licences Report

Scroll to bottom of page for unique count of licences found in your search

Licence No	WR Map or Points Code	Stream Name	Purpose	Qty	Unit	Qty Flag	Rediv Flag	Licensee	District/Precinct	Licence Status	Process Status	Priority Date	Issue Date
C030298	3600 S (PD48171)	Corning Creek	Domestic	500	GD	T	N	Martinovsky Emil SITE 10 COMP 1 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19640617	0
C040282	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Mcivor Kenneth D 4812-122 "A" STREET EDMONTON AB T6H3S7	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
C040283	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Fedorak William J & Jessie 971-7TH STREET KAMLOOPS B C V2B2W7	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
C046337	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Denis Joseph A RR 1 COMP 16 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19751114	0
C049272	3600 V3 (PD48169)	Corning Creek	Domestic	1000	GD	T	N	Carter James H & Marie E RR 1 COMP 11 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19741220	0
C050780	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Chadney Arnold P & Wilma A 7144 205 ST	KAM - ADAMS RIVER	Current	Not Applicable	19770712	0

	(PD48172)	Creek						LANGLEY BC V2Y1T1	RIVER		Applicable		
C055438	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Paulson Ronald E 496 COLLINGWOOD DR KAMLOOPS BC V2B6B3	KAM - ADAMS RIVER	Current	Not Applicable	19751210	0
C058181	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Mowatt John Kenneth RR 2 COMP 4 SITE 2 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19770426	0
C058182	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Bak Veronica M ADAMS LAKE HOLDING RD SITE 6 BOX 11 RR 2 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19770804	0
C058183	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Smith Gaye J & Martinovsky Emil 529 LINDON AVE KAMLOOPS BC V2B2N5	KAM - ADAMS RIVER	Current	Not Applicable	19780609	0
C058184	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Rexin Philip A & Lois A SITE 10 COMP 28 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19780626	0
C058185	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Wyett William R & Harbidge Wendy E SITE 9 COMP 5 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Ap Kicable	19751210	0
C058186	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Ellis Merv L & Carol M SITE 10 COMP 21 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19751210	0

C058187	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Sutton Paul E RR 1 COMP 10 SITE 8 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19770426	0
C058188	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Mclellan James RR 1 COMP 25 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19770426	0
C058189	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Mclelland James Campbell SITE 10 COMP 25 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19770426	0
C058190	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Mcintyre Joan Marigold RR 1 SITE 11 COMP 65 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19770803	0
C059911	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Mowatt John Kenneth RR 2 COMP 4 SITE 2 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19830512	0
C059912	3600 V3 (PD48169)	Corning Creek	Domestic	1000	GD	T	N	Carter James H & Marie E RR 1 COMP 11 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19830126	0
C064967	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Huene Ted & Kay SITE 10 COMP 12 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19850528	0
C067102	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Palmer Garry F & Rebecca K RR 1 COMP 10 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19880505	0
								Martinovsky Ivan					

C067199	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	SITE 1 COMP 2 RR 2 PRINCE GEORGE BC V2N2H9	KAM - ADAMS RIVER	Current	Not Applicable	19751210	0
C104241	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Copeland Douglas S Et Al RR 1 COMP 97 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not M0plicable	19880803	19950412
C109491	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Gaw Margaret RR 1 SITE 11 COMP 57 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109492	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Mcintyre Ken RR 1 SITE 11 COMP 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109493	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Rawn Roger RR 1 SITE 11 COMP 13 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109494	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Cosby Rebecca RR 1 SITE 11 COMP 48 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109495	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Guiffrida Cris C/O R.MACDONALD PO BOX 83 CELISTA BC V0E1L0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109496	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Knowlton Stephen R RR 1 COMP 81 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412

C109497	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Holland Mark RR 1 COMP 61 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109498	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Cosby Calvin & Rebecca RR 1 COMP 48 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109499	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Bastien Judith RR 1 COMP 50 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C109500	3600 S4 (PD48185)	Corning Creek	Domestic	500	GD	T	N	Rawn Robert RR 1 COMP 22 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Under Appeal	19880803	19950412
C111377	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Trueman Tess RR 1 COMP 13 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19751210	19961015
F019848	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Harris Kenneth P & Ellen M 2423 SUNSET DRIVE KAMLOOPS B C V2C4K1	KAM - ADAMS RIVER	Current	Not ApKAMable	19640205	0
F019849	3600 Q (PD48172)	Corning Creek	Irrigation	37.2	AF	T	N	Simpson Charles S Jr 1121 VALOIS AVE SW CALGARY AB T2T1L4	KAM - ADAMS RIVER	Current	Not Applicable	19100817	0
F019850	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Fisher Allan & Diane RR 1 COMP 10 SITE 9 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
								Knudsen Patricia					

F019851	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	K 31-1100 56TH ST DELTA BC V4L2N2	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
F019852	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Clark Hannelore M RR 1 COMP 26 SITE 9 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
F019853	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Mccully Gerald W Et Al 355 RICHMOND ST NEW WESTMINSTER BC V3L4B9	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
F019854	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Cochrane Jacqueline V BOX 384 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
F019856	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Little Michael V & Elizabeth J SS 1 BOX 8 SITE 21 CALGARY AB T2M4Z3	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
F019896	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Schmidt Allen E & Catherine E 630 SIERRA MADRE CRT SW CALGARY AB T3H3M5	KAM - ADAMS RIVER	Current	Not Applicable	19640205	0
F019978	3600 Q (PD48172)	Corning Creek	Domestic	500	GD	T	N	Simpson Charles S Jr 1121 VALOIS AVE SW CALGARY AB T2T1L4	KAM - ADAMS RIVER	Current	Not Applicable	19670213	0
F041002	3600 Q (PD48172)	Corning Creek	Domestic	2000	GD	T	N	Simpson Charles S Jr 1121 VALOIS AVE SW	KAM - ADAMS RIVER	Current	Not Applicable	19700127	0

	(PD48172)	Creek						CALGARY AB T2T1L4	RIVER		Applicable		
Z102775	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Huene Ted & Kay SITE 10 COMP 12 RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Acti B Appl.	Applic-Cleared	19901113	0
Z103746	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Simard Suzanne BOX 1232 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19911105	0
Z109611	3600 E5 (PD70827)	Corning Creek	Domestic	500	GD	T	N	Knowlton Stephen R RR 1 COMP 81 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19950503	0
Z111416	3600 V3 (PD48169)	Corning Creek	Domestic	500	GD	T	N	Simpson Charles S Jr 1121 VALOIS AVE SW CALGARY AB T2T1L4	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19960820	0
Z111600	3600 G5 (PD72722)	Corning Creek	Domestic	500	GD	T	N	Malmsten John & Sharon 6231 240 ST RR 8 LANGLEY BC V2Y2G3	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19961008	0

Total number of Licences and/or Applications found is **50**

British Columbia Ministry of Environment, Lands & Parks

Water Licences Report

Scroll to bottom of page for unique count of licences found in your search

Licence No	WR Map or Points Code	Stream Name	Purpose	Qty	Unit	Qty Flag	Rediv Flag	Licensee	District/Precinct	Licence Status	Process Status	Priority Date	Issue Date
C038719	3602 Y (PD48247)	Freeman Brook	Domestic	1000	GD	T	N	Lamb Herschel A 6782 DORCHESTER RD NIAGARA FALLS ON L2G5T9	KAM - ADAMS RIVER	Pending	Apportionment Pend	19700817	0
C054344	3602 CC (PD48246)	Freeman Brook	Domestic	500	GD	T	N	Cooperman James B RR 1 COMP 2 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19740225	0
C056450	82.L.093.1.4 B (PD55310)	Freeman Brook	Domestic	2500	GD	T	N	Lutjen Larry D RR 1 BOX 12 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19761008	0
"	"	Freeman Brook	Irrigation	20	AF	T	N	Lutjen Larry D RR 1 BOX 12 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Current	Not Applicable	19761008	0
C109396	3602 UU (PD70776)	Freeman Brook	Domestic	500	GD	T	N	Poliak Harry & Amy Huppler-Poliak RR1 SITE 11	KAM - ADAMS RIVER	Current	Not Applicable	19740225	19950911

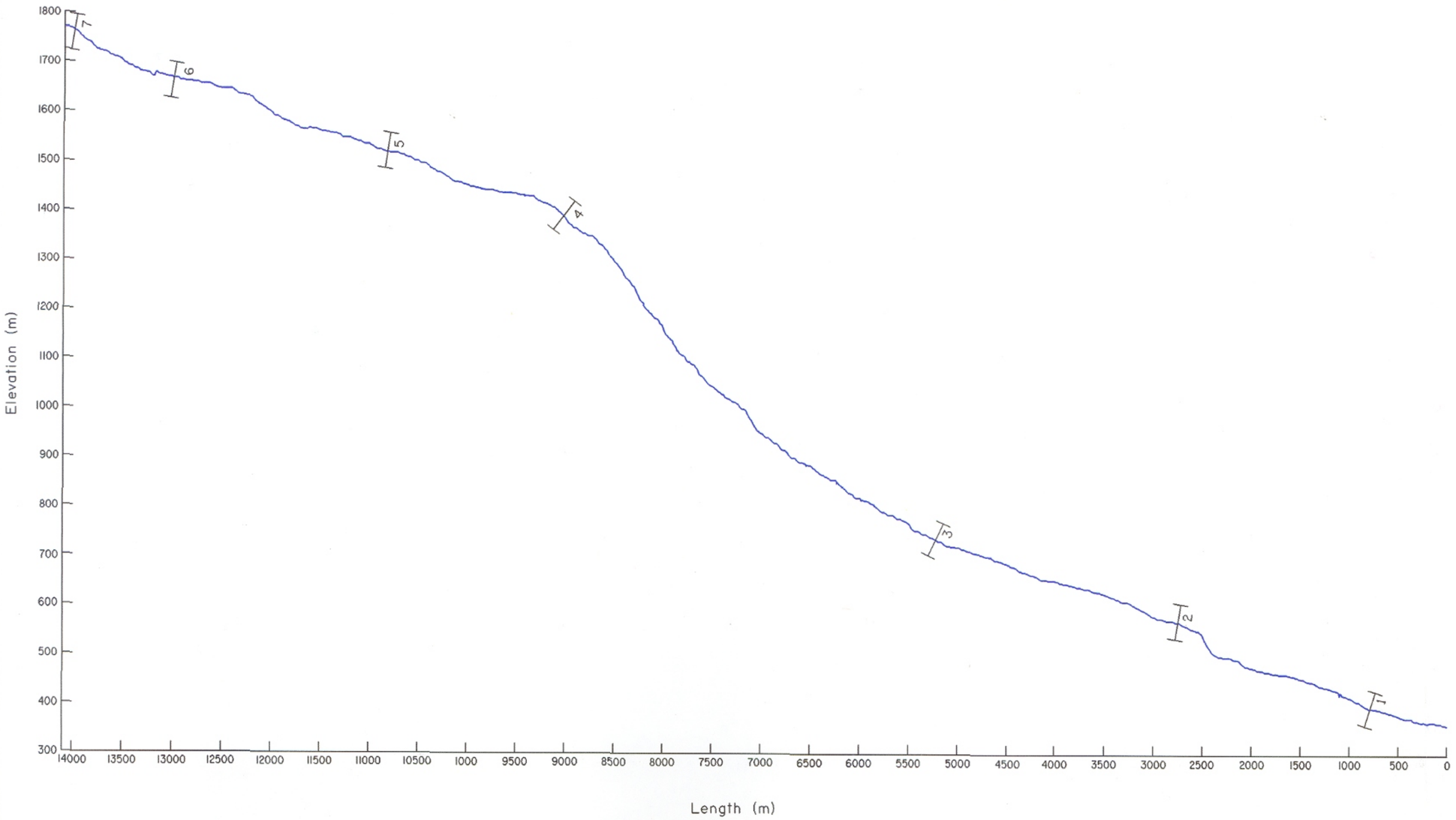
	(PD70776)	Brook						COMP 23 CHASE BC V0E1M0	RIVER		Applicable		
Z102764	3602 QQ (PD48245)	Freeman Brook	Domestic	8000	GD	T	N	Cooperman James Et Al RR 1 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19870513	0
Z104614	82.L.093.1.4 D (PD66076)	Freeman Brook	Storage	20	AF	T	N	Lutjen Larry D RR 1 BOX 12 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19920421	0
Z104738	3602 CC (PD48246)	Freeman Brook	Irrigation	4	AF	T	N	Cooperman James B RR 1 COMP 2 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19920513	0
"	"	Freeman Brook	Storage	4	AF	T	N	Cooperman James B RR 1 COMP 2 SITE 10 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19920513	0
Z106191	82.L.093.1.4 D (PD66076)	Freeman Brook	Irrigation	160	AF	T	N	Lutjen Larry D RR 1 BOX 12 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19930205	0
"	"	Freeman Brook	Storage	160	AF	T	N	Lutjen Larry D RR 1 BOX 12 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	ApplM - Cleared	19930205	0
Z106339	3602 TT (PD67515)	Freeman Brook	Domestic	1000	GD	T	N	Thomas Kent J J RR 1 COMP 62 SITE 11 CHASE BC V0E1M0	KAM - ADAMS RIVER	Active Appl.	Applic-Cleared	19930311	0

APPENDIX E

1:20,000 Watershed Map
(accompaniment)

APPENDIX F

Corning Creek Mainstem Profile



Federated Co-operatives Limited
Canoe, B.C.

BRITISH COLUMBIA

FOREST RENEWAL BC

CORNING CREEK MAINSTREAM PROFILE

(CORNING CREEK IWAP)

LEGEND

Creek

Reach Break

Vertical Exageration 5x

Date Produced: August 19, 1999

Produced By: Silvatech Consulting Ltd.

AVERAGE REACH GRADIENT	
Reach #	Average Gradient
1	5.6%
2	7.6%
3	14.4%
4	22.5%
5	6.7%
6	6.8%
7	9.6%

APPENDIX G

Field Notes

CORNING CREEK 13/7/99
AB

SITE 0
- RANCH ROAD FOLLOWING MAIN CREEK TO CUTBLOCK ON SECOND SWITCHBACK
ROAD MOSTLY GRASSED AND NO SEDIMENT, HOWEVER SEVERAL PLACES WATER HAS SCOURED RUTS ALONG TIRE TRACKS - TRAVERSES HILLSIDE FOR CONSIDERABLE DISTANCES

PHOTOS 24,25
SKETCH [illegible]

SITE 1
CREEK CROSSING 900mm CSP
CREEK STABLE HOWEVER APPEARS TOO CLEAN - POSSIBLY ONCE USED AS SKIDTRAIL
ALDERED BANKS, LOW AMOUNTS OF LWD.
NO SIGNS OF SCOUR OR INCREASED FLOWS

PHOTOS 1,2
CC10

SITE 2 CREEK (MAINSTEM) FOLLOWS ALONGSIDE ROAD FOR 100 m (FROM SWITCH IN ROAD) TO DEACTIVATED XING
HEAVY INSTREAM ALDER GROWTH STABLE - D/S OF DEACT XING SLOPE INCREASES SHARPLY TO BEDROCK CONTROLLED STEEP CASCADE - GOOD LWD FUNCTION
(Con't)

PHOTOS 3-8

CORNING CREEK CC10 13/7/99
SITE 2 (Con't) AB

SOME EVIDENCE OF ANGULAR BEDLOAD MOVEMENT - BANKS STEEP, BUT STABLE, MOSS NEAR HWL - NO EVIDENCE OF HIGH FINE SEDIMENT LOADS

SITE 3
CULVERT CROSSING 700mm CSP
CULVERT HAS OVERTOPPED SCOURING ROAD SURFACE
SOME AGGRADATION IMMED D/S OF CULVERT - ALDER GROWTH IN CHANNEL PROVIDING STABILITY
RIP VEG REDUCED BY ROAD ROW. - FLOW IN DITCHLINE UPSLOPE TO CHANNEL - SELF ARMOURED

PHOTOS 9,10,11

SITE 4 KM 16 ON [illegible] ROAD
TRIB CROSSING 500mm CSP
POORLY DEFINED LOW GRADIENT CHANNEL U/S
NO SURFACE FLOW VISIBLE
SUMP @ CULVERT - SOME EVIDENCE OF MINOR OVERTOPPING
STABLE, WELL VEGETATED
- WRONG SITE - MAIN CHANNEL OVER NEXT RISE.

WRONG SITE

CORNING CREEK CC10 13/7/98
AB

SITE 5

PHOTOS 24,25,26 SCOUR WASHOUT ROAD CROSSING - 1700 mm CSP STABLE, SOME AGG. U/S
PHOTOS OF CULVERT, BUT NO BLOCKING
WELL ARMOURED CHANNEL
27,28 W/ FUNCTIONAL LWD
FILLSLOPES VEG. W/ HORSETAIL
SOME DITCH WATER DIRECTED
INTO CREEK.

SITE 6 ROAD CROSSING ~ 1200 mm CSP
OVERGROWN RD - CHANNEL
SEVERELY AGGRADED FOR 30 m
U/S OF CULVERT - CULVERT
PHOTOS UNDERSIZED! PARTIALLY
29-34 PLUGGED W/ AGGRADED
MATERIAL - 50 m U/S
CHANNEL MORE STABLE,
GOOD LWD - SOME ANGULAR
BEDLOAD MOVEMENT + DEPOSITION
D/S OF CULVERT - GRADIENT
INCREASES SHARPLY - STABLE
NATURAL CHANNEL, GOOD
LWD - TRAPPED BEDLOAD
STEEP BANKS - NO BEDROCK
OBSERVED YET

SITE 7 STEEP BEDROCK CONTROLLED
CANYON - STABLE - N/O
PHOTO EVIDENCE OF DEBRIS MOVEMENT
35,36 OR DEPOSITION

CORNING CREEK CC10 13/7/98
SITE 4 con't AB

OVERRISE NEAR EXP 16
3 DRAWS W/ FLOW

1ST DRAW - MOST FLOW - WASHOUT
1200 mm CSP - SLIGHTLY
DAMAGED BY WOOD LAID OVER
CULVERT (POOR LOAD DISTRIBUTION)
BUT OTHERWISE FUNCTIONAL
ROAD FILL SCOURED ALONG
PART FORMED BY ? HAND? D/S SIDE OF CULVERT.
LIKELY OVERTOPPED THEN
BACKCUT. SOME FLOWS HAVE
RUN NE ALONG ROAD TO
NEXT CULVERT - SCOURING
ROAD SURFACE + DITCHLINES
2nd DRAW 400 mm CSP
MINOR FLOWS IN MINOR CHANNEL
- OVERTOPPED FLOWS FROM 1ST DRAW
FLOWED OVER - QUICKLY
REJOINS M/S D/S
3rd DRAW 1200 CSP
WIDE NATURAL CHANNEL
WITH RELATIVELY LOW FLOW
STABLE, MOSSY, ARMOURED
NO EVIDENCE OF OVERTOPPING

(PHOTOS 12-23)

CHANNEL AGGRADED U/S DUE
TO UNDERSIZED CULVERT - ALSO
PARTIALLY AGGRADED D/S
POSSIBLE INCREASED FLOWS FROM
INFORMATION 3rd DRAW

CORNICK CREEK CC11 13/7/99
AB

SITE 8
ROAD CROSSING 500 CSP
SINGLE CHANNEL - MULTI CHANNELED U/S OF CROSSING - SOME DITCH FLOWS DIRECTED INTO STREAM (LESS FLOW THAN SITE 4)
D/S STABLE, WELL FLOORED CHANNEL
PHOTOS 1,2,3

SITE 9
ROAD CROSSING 300 CSP
MAIN DRAW BUT MINOR FLOW (LESS THAN SITE 4)
CULVERT UNDERSIZED - EVIDENCE OF OVERTOPPING PARTIALLY BLOCKED @ D/S END - CHANNEL U/S + D/S MEANDERING LOW GRADIENT - WELL VEGETATED STABLE ALPINE LIKE STREAM
PHOTOS 4,5,6,7

SITE 10 SKID TRAIL
- SURFACE FLOWS INTERCEPTED BY SKID TRAIL AND CARRIED ACROSS SLOPE FOR LONG DISTANCES - SINGLE X DITCH NEAR END DIVERTING FLOWS TO NEW CULVERT RESTORE NATURAL DRAINAGE!
PHOTOS 8,9,10

SITE 11 - UNDERUTILIZED CULVERT IN DRAW LOOK TO DIVERTED FLOWS ABOVE
PHOTOS 11,12

CORNING CREEK CC12 13/7/99
AB

SITE 12
ROAD CROSSING - CSP 1200
ROAD HAS OVERTOPPED, PARTIALLY ERODED FILLSLOPE CAUSING SOME DEPOSITION D/S
STILL HIGH FLOW - TURBULENT BUT CLEAR - RECENT REPAIRS?
U/S OF CULVERT FLOW SPLITS - EAST TRIB MAJOR W/ HIGH FLOW CREEK APPEARS TO HANDLE IT O/K - NO BED LOAD OR SCOUR - CASCADES IN WELL DEFINED DRAW - GOOD U/S NO DEPOSITION U/S OF CULVERT - PUC 3/4 FULL STABLE CHANNEL BUT LOTS OF WATER - RECRATES TO SITE 4 D/S RELATIVELY LOW GRADIENT
PHOTOS 13, 1, 2, 3, 4

SITE 13 ROAD CROSSING 600 + 300 CSP
WASH OUT, HOWEVER RECENTLY REPAIRED - LOTS OF H2O COMING FROM ABOVE + DITCHLINE - CONNECTS TO SITE 3.
PHOTO 5,6

SITE 14 ROAD CROSSING 500 CSP
GOOD FLOW - STABLE RELATIVELY LOW GRADIENT - TREE FALLEN OVER ROAD
PHOTOS 7,8

CORNING CREEK FILM CC1 (MOVING PHOTOS IN SEQUENCE) 3/11/98 AB/SD

0+000 @ SHUSWAP LAKE - DRY STEEP COBBLY FAN, DROPS OFF INTO LAKE - SOME SAND + FINE GRAVEL DEPOSITS - TYPICAL OF BEACH - NO INCREASE NOTED AT CREEK MOUTH - NEW BLDG PLANNED FOR LB - NO RIPARIAN VEG AND ADDED RIPRAP

PHOTO 7

0+050 E/ VEG LINE - BEGIN WELL DEFINED CHANNEL 3m DEEP - 6-8 m WIDE 3% SLOPE D_{90} 60cm OCC. CUT STUMP ON BANK

PHOTO 8

0+090 E/ CLEARED LAND ON LB OCC. EXPOSED SOIL ON BANKS BUT OTHERWISE STABLE LOTS OF OLD, LARGE BANK TREES INDICATING PERMANENCE OF BANKS - REASONABLY WELL INSCIBED INTO FAN BUT LITTLE STRUCTURE IN CHANNEL - NO FINES

CORNING CREEK CC1 3/11/98 AB/SD

0+100 (cont)
LWD LIKELY CLEARED BY LOCALS TO PREVENT BANK EROSION + AVULSION. HOWEVER - ALLOWS REGULAR BED MOVEMENT. COBBLE SUBSTRATES ARE LOOSE, UNMOSSED AND LIKELY MOVE SECTION OCC. SCOUR + DEPOSITION. NO WEDGES DUE TO NO LWD
D_{90} - 40cm
OCC. SCOUR ON BANKS EXPOSING ROOTS ETC BUT NOT NEC. RECENT

PHOTO 9, 10, 11, 12

0+150 SLIGHT RIGHT BEND - OUTSIDE LB SCOURED BUT HELD BY TREES FOR NOW CHANNEL DEPTH REDUCED TO 2m/1.5m WIDTH 4-5 m
BANK STRUCTURE APPEARS TO HAVE 1m OF SOIL OVER COBBLES. (FAN BASE)

PHOTO 13

0+200 SMALL LOG JAM - OCC. OLD SCOURED TERRACE IN FLOODPLAIN (OLD)

PHOTO 14

CORNING CREEK CC1 3/11/98
(GREEN CAMP) AB/JD

0+250 RB CLEARED LAND WITH SINGLE ROW OF CEDARS + CTTNWD
PHOTO 15,16 VERY STEEP BANKS
2.5m DEEP x 4m WIDE
UNDERMINED FENCE LINE (OLD)

0+350 BIG OLD BENT TREES
ADJACENT TO STREAM - FALLEN
PHOTO 17,18 CEDAR NURSE LOG

0+450 LOTS OF CUT STUMPS
PHOTO 19,20 MAIN CREEK - LEFT TURN
ALONG FENCE LINE

0+500 HWY BRIDGE. CONC. DECK
W/ TIMBER PILE AND 4x16
PHOTO 21 LUMBER CRIB WALL ABUT.
6m-7m WIDE x 2.0 x 2.5m HIGH

0+550 LARGE LUMP OF ASPHALT
DUMPED TO PROTECT LB - OLD
PHOTO 22 (OLD ROAD ABOVE) - SOME BRIDGE ABUT
MOSS ON ROCKS ON UPPER
EDGES OF CHANNEL -

CORNING CREEK CC1 3/11/98
AB/JD

0+600 OLD ROAD CROSSING
BRIDGE APPROACHES RECENTLY
PHOTO 23 REMOVED + RD DEACTIVATED
SOME SOIL/GRAVEL LEFT IN
CREEK - OTHERWISE BANKS
APPEAR STABLE - NO LOGGING RD
- SOME TO RESIDENT - TOM ALLEN
HAS TUCKED ROCKS UNDER
ERODING BANKS - REMOVED SOME
WOOD

0+700 SLIGHTLY WIDER SECTION
PHOTO 24 W/ SOME COBBLE DEPOSITION
0+760 LB BECOMES STEEP - NO
PHOTO 25 CONIFER FAN - ↑ 3,0m
FILM CC2

0+800 LEFT BANK LANDSLIDE
PHOTO 1,2 45 years old - DEBRIS PILE
IN CREEK - MINOR SEDIMENT
SOURCE - SOME FINES IN CREEK
CHANNEL WIDTH - 3,5m
DEPTH 1.0m Dep = 45cm
PHOTO 3 PAN SLOPE = 4%

CORNING CREEK CC2 3/11/98
AB/JD

0+850 LB - LARGE FAILURE PARTLY OLD, PARTLY STILL ACTIVE - VERY STEEP, WELL DEFINED SCARP - BUILDING AT TOP - MAY BE REACTIVATED BY INCREASED LB SCOUR ON CORNER CREEK LEAVES STEEP SLOPE FLOODPLAIN (FAN) ON BOTH SIDES
(PHOTO 4, 5, 6)

0+900 CHANNEL WIDTH INCREASES
(Photos 8, 9) - FENCE LINE - SOME LB SCOUR + OCC. SMD JAMS
- ATV CROSSING - OLD ROAD

0+950 - LOWER EXTENT OF FLOW STEEP RIGHT VALLEY WALL IS FAILING - CLEARED ABOVE
(Photo 10, 11)

0+980 INTAKE - ROCK WIER W/ ABS PIPE TO VERTICAL CONC. WALL - PUMP LINE?
(Photo 12) POSSIBLY BURIED
SOME CLEARING OF LB
CREEK HAS SOME LWD
(MAIN LACK OF IT.

CORNING CREEK CC2 3/11/98
AB/JD

1+000 PROPERTY PIN - CORNER?
SLIGHTLY WIDENED SECTION W/ BOULDERS JAM - BANKS STILL STABLE (GRANITE)

1+020 FLOOD CHANNEL ON LB LEADS TO SLOPE FAILURE D/S
(Photo 14) OCC. BUT NOT RECENTLY ACTIVE LARGE + WELL DEFINED

1+050 SLIGHT INCREASE IN SLOPE 5%
(Photo 15) BETTER GRADED SUBSTRATES MORE STONE LINES - LOTS OF FLOW - MOSS (ALGAE) ON ROCKS IN CHANNEL

REACH BREAK

1+209 MAJOR INTAKE STRUCTURE CONCRETE W/ WOOD STOP LOGS CREEK EMERGES FROM
(Photo 16, 17, 18, 19) BEDROCK CANYON - CONFINED W/ LOTS OF LWD SPANNING CHANNEL - FLOW HAS OUTFLANKED STRUCTURE ON LB CAUSING SOME BANK EROSION (AND LOSING SOME HEAD) - STRUCTURE IS

CORNING CREEK CC2 3/11/98
LOWER SECT (Cont) VB/SD

BACKFILLED W/ SANDS + GRAVELS
SOME COBBLES - RB IS STABLE,
PHOTO 18 MOSSY - NO EVIDENCE OF
TORRENTS OR HIGH FLOWS.
LITTLE FINE SEDIMENT BEHIND
DAM (PHOTO 19)

1+230 DEBRIS JAM IN CANYON - OLD
+MOSSY - SOME DEPOSITION

1+300 STEWART RECORDER WELL

PHOTO 21 RESIDUE CREEK - 2m ABOVE FWL
IN CANYON - HABITAT

1+320 2m HIGH DEBRIS JAM IN
CREEK AT ENTRANCE TO
BROCK CANYON - BACKFILLED
W/ SAND, GRAVEL, COBBLE
TO TOP - SAND BAR W/ HORSETAIL
PHOTO 22, 23, 24, 25 GROWING US
W/S CHANNEL IS LESS
CONFINED - LOTS OF LWD
STABLE BANKS W/ SOME BEDROCK
LWD SURVEY
NO EVIDENCE OF HIGH FLOWS
OR EXTREME BEDLOAD

CORNING CREEK CC3 13/11/98
AB/SD

- FOLLOWED SCOURED (NOT NATURAL) DITCH JUST BEYOND END OF SWITCH BACK - SWINGS DOWN AND CROSSES OLD TRAIL - SEVERAL OVERTOPPING POINTS - FOLLOW LARGEST
POSSIBLE SCARP JUST BELOW ROAD - SHOWS
- WELL DEFINED SCOURED W/C DOWN SLOPE - SEEK ARMOURED - OPENS INTO [illegible]. FAILURE 5m WIDE MID-SLOPE - RECONCENTRATES AND SCOURS 60 - 100% SLOPE STEEPER SECTIONS EXPOSED BEDROCK
- FALLS INTO CREEK OVER BEDROCK FACE - BIG SED SOURCE
- D/S (30m) IS FAILED GULLY MAY BE RELATED TO OTHER OVERFLOW @ ROAD - 6m WIDE BY 45m HIGH - TREES IN CREEK @ SEDIMENT WEDGE U/S OF DEBRIS JAM

(PHOTOS 1-24)

CORNING CREEK CC3 13/11/98
AB/SD

EAST FORK

0+40 LOWER SECTION OF EAST FORK NEAR C/F W M/S APPEARS STABLE, SOME EVIDENCE OF BANK SCOUR BUT GOOD LWD F AND COBBLE/BOULDER SUBSTRATE BEDLOAD. (PHOTO 25)
OCC. VERY OLD CUT CEDAR STUMP (ONLY 60 cm Ø!)

-

0+75 CHANNEL SPLITS AROUND SWD JAM - COBBLE BOULDER WEDGE - OTHERWISE MOSTLY STABLE - MORE CUT STUMPS (PHOTO 26)

0+124 SMALL 10X10m RB FAILURE DEBRIS IN SIDE OF CREEK GRAVELLY MAT. - DEBRIS JAM (PHOTO 29)

0+185 - MINOR FAILURE (CRACK) ON RB - SOME SIGNS OF STRESS

0+238 - 2m HIGH DEBRIS JAM BACKFILLED W/ COBBLES BIG LIGHTNING TREE (PHOTO 31/32 33) SURVEY [illegible]

Channel Assessment Procedure Field Guidebook

EAST FORK

Sub-basin: TRIBUTARY TO	Date: 98/11/13
Reach: CORNING CR.	Crew: AB/SD
	Weather: OVERCAST/MILD

Station	W_b (m)	d (cm)	s (%)	D (cm)	Morphology from nomogram (Figure 5)
0+000	4.8	55	11	40	SPbW
0+238	6.7	60	15	37	SPbW
0+269	5.9	39	13	41	SPbW
				Modal morphological type	

Distance (m)	Bank type†	Channel type and disturbance level	Check any field indicators present S1 S2 S3 S4 S5 C1 C2 C3 C4 C5 B1 B2 B3 D1 D2 D3	Photo roll & frame
0+000	N2/3	SPbW5	■ ■ ■	
0+060	N2/3	SPbW A2		
0+269	END			

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensively scoured zones
C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines
B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

†A (Erodible): 1 = silt, 2 = sand, 3 = gravel, 4 = cobble, 5 = boulder (A4/5 = Alluvial, gravel over boulder)
N (Non-erodible): 1 = Till, 2 = colluvium, 3 = bedrock (see WAP Appendix 11 for bedrock types)

Field Form 1. Field data.

CORNING CREEK CC3, 4 13/11/98
AB/SD

0+000 ② CONFLUENCE W/ EAST FORK
M/S ~ 4 X LARGER - M/S
IS AGGRADED / SED WEDGES
D/S - BANKS SLIGHTLY SCARRED
RECENTLY DEPOSITED GRAVELS
PHOTOS 34, 35, 36
NEW FILM CC4 - BEGIN SURVEY U/S M/S

0+041 - LOG JAM W/ COBBLE DEPOSITION
THALWEG (PHOTO 1, 2)
INCL SAND PATCH (PHOTO 3)

0+097 CONFINEMENT ↑ BEDROCK
ON LB - STILL A2+
PARTIALLY DEWATERED PHOTO 4

0+191 4m HIGH LOG JAM
AGAINST BEDROCK LEDGE
BACKFILLED W/ COBBLE (PHOTO 5)
CHANNEL DEWATERED ABOVE (PHOTO 6)

0+236 SOME FLOWS RE-APPEAR
NUMEROUS FALLEN TREES U/S
15-20 YEAR OLD BENT COUNTS

0+334 TOP OF SLIDE (ACCESS) (PHOTOS CC3 - 1 - 25
INCL SED WEDGE

CORNING CREEK   CC4   13/6/6
AB/SD

0+370 – BEDROCK WATERFALL
(PHOTO 7) ASSOC. WITH WATER TRACK FOLLOWED FROM TOP

[illegible] CREEK APPEARS MORE STABLE U/S
(PHOTO 8) – SOME MOSS ON COBBLES SLIGHTLY AGGRADED

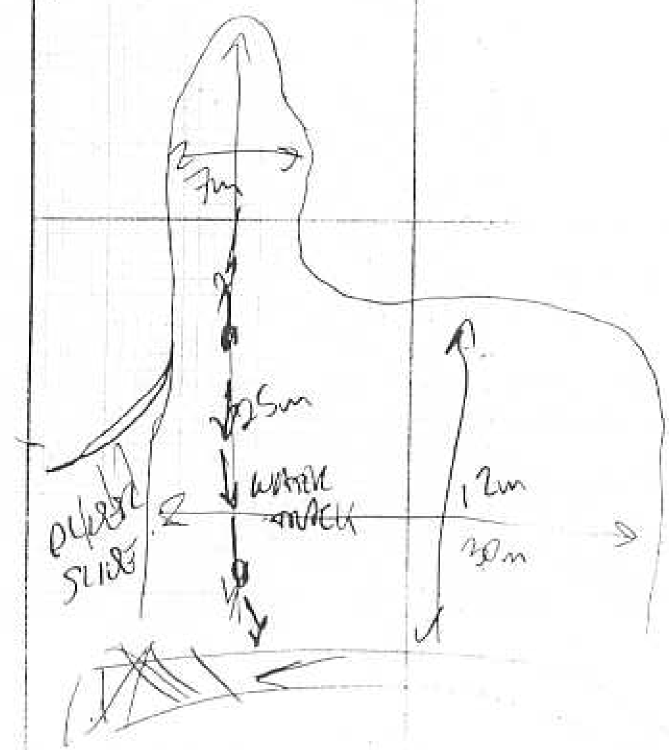
0+514 BEDROCK CONTROL IN CHANNEL - MOSSY BLOCKS
(PHOTO 9) APPEARS MORE STABLE. SLIGHTLY SCOURED BANKS

0+562 NUMEROUS FALLEN TREES? W/ COBBLE/GRAVEL SED WEDGES
(PHOTO 10) TO 1.5m – PATCH OF WINDFALLS ON LB

POSSIBLE SOIL INSTABILITY – DRUNKEN TREES

0+611 TRIB GULLEY ON RB
(PHOTO 11/12) NO FLOW BUT EVIDENCE OF HIGHER FLOWS + SCOUR
OCC. SEDIMENT SOURCE
SMALL FAN - BIG TREES
VALLEY OPENS SLIGHTLY - LESS ROCK

0+712 COBBLE WEDGE/DEBRIS FLOOD DEPOSIT ON LB (PHOTO 13)



CORNING CREEK CC4 13/11/98
AB/SD

0+747 - OLD (APPARENT) DEBRIS FLOW LOBE - RAFTED JAM ON LB - SUBSURFACE CONIFERS REVEGETATING
(PHOTO 14, 15)
- OPENS UP TO LARGE DEPOSIT U/S OF JAM - LOTS OF SUBSURFACE CEDAR, ETC

0+803 DEBRIS JAM - W/ ELEVATED MID-CHANNEL ? BAR
(PHOTO 16)

0+877 LARGE FAILURE SITE ON RB
(PHOTO 16-25) - OLDER FAILURE SLIGHTLY O/S - PART REVEGETATED
SIG. SED SOURCE - CLAY SANDY LOAM - RAVELLING
UNSTABLE LIP - TENSION CRACKS - CUT STUMP @ TOP?
- FLAT AREA @ TOP OF SLIDE (BENCH) FLOW - CAN GO NUMEROUS DIRECTIONS - FOLLOW GULLY UP TO WELL DEFINED NATURAL GULLY - NATURAL ROUTE CHANNEL
(PHOTO 26,27)
∴ LIKELY NATURAL SLIDE

CORNING CREEK CC4 13/11/98
AB/SD

1+000 ~
2nd FAILURE - SHALLOW SURFACE SLIDE IN CLAYEY TILL - LITTLE SURFACE ARMOURING
TREES LEANING ACROSS CREEK
LIKELY TO CONT. RAVELLING
NATURAL - POSSIBLY UNDERCUT BANK (PHOTO 28,29,30,31)
SED WILL U/S

1+036 - CONFLUENCE WITH WELL DEFINED DRAW ON RB - APPEARS STABLE
NO FLOW, NO SCOUR

1+057 DEBRIS FLOW LOBE ON LB (20-30 years OLD) (PHOTO 32)

1+090 SMALL BANK FAILURE ON LB - 10x12m - TREES IN CREEK, COBBLE WEDGE
(PHOTO 33)

1+134 BEDROCK RB CONTROL/[illegible]

1+180 - CREEK WIDENS - POSSIBLE DEBRIS FLOW DEPOSIT AREA
(PHOTO 34)

1+460 CREEK APPEARS MOSTLY STABLE - OCC. WEDGE - MINIMAL BANK EROSION - CLIMB OUT - E/BURY
(PHOTO 35)

Sub-basin:	CORNING MAIN	Date:	95/11/13
Reach:	AFTER EAST FORK	Crew:	AB/SO
		Weather:	LITE RAIN/MILD

Station	W_b (m)	d (cm)	s (%)	D (cm)	Morphology from nomogram (Figure 5)
0+000	7.5	60	10	35	SP 6W
0+030	9.5	65	11	30	SP 6W
0+049	8.7	60	10	37	SP 6W
				Modal morphological type	

Distance (m)	Bank type†	Channel type and disturbance level	Check any field indicators present S1 S2 S3 S4 S5	C1 C2 C3 C4 C5	B1 B2 B3	D1 D2 D3	Photo roll & frame
0+000	N 2/3	SP_{6W} A3	☐☐☒☒☐	☐☐☒☐☐	☐☐☐	☐☒☒	
			☐☐☐☐☐	☐☐☐☐☐	☐☐☐	☐☐☐	
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			☐☐☐☐☐	☐☐☐☐☐	☐☐☐	☐☐☐	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensively scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

†A (Erodible): 1 = silt, 2 = sand, 3 = gravel, 4 = cobble, 5 = boulder (A4/5 = Alluvial, gravel over boulder)
N (Non-erodible): 1 = Till, 2 = colluvium, 3 = bedrock (see WAP Appendix 11 for bedrock types)

Field Form 1. Field data.

APPENDIX H

Site Photographs
and Photodocumentation

Photo Plate 1. Reach 1. Corning Creek at outlet into Shuswap Lake.

Photo Plate 2. Reach 1. Typical channel conditions. Note lack of LWD in creek.

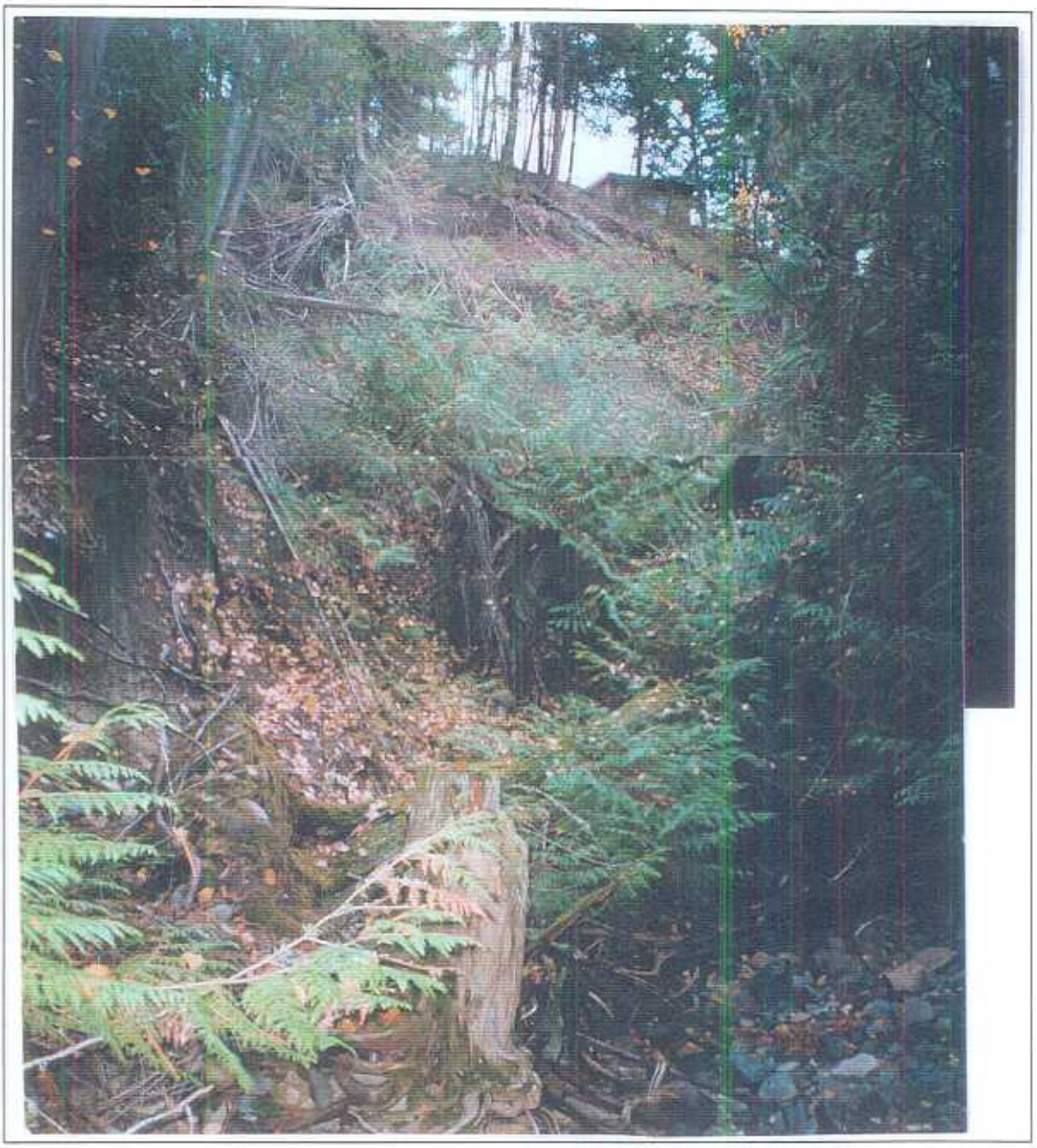

Photo Plate 3. Reach 1. Landslide scarp along edge of creek. Note building on top of slope. (S2)

Photo Plate 4. Reach 1. Landslide associated with access road to water intake site. (S3)

Photo Plate 5. Reach 3. Aggraded channel sections upstream of confluence with east tributary.

Photo Plate 6. Reach 3. Sediment wedge captured behind debris jam.

Photo Plate 7. Reach 3. Dewatered section of aggraded channel

Photo Plate 8. Reach 3. Slope failure (S4) where water has been concentrated along lower edge of block.

Photo Plate 9. Reach 3. Gully (Failure S5) related to upslope drainage problems. (Note bedrock near lower end.)

Photo Plate 10. View of failure S6 from stream edge.

Photo Plate 11. Reach 3. Enlarged bank failure. (S7)

Photo Plate 12. Reach 3. Slope failures S8 and S9 photographed from above.

Photo Plate 13. Reach 5. (Site 4). Road washout at 1200 mm diameter culvert crossing following the 1999 freshet. Inadequate cover likely caused the culvert damage shown in photo plate 15.

Photo Plate 14. Reach 5. (Site 12) 1200 mm diameter culvert overtopped during 1999 freshet, leaving eroded road surface and fillslope.

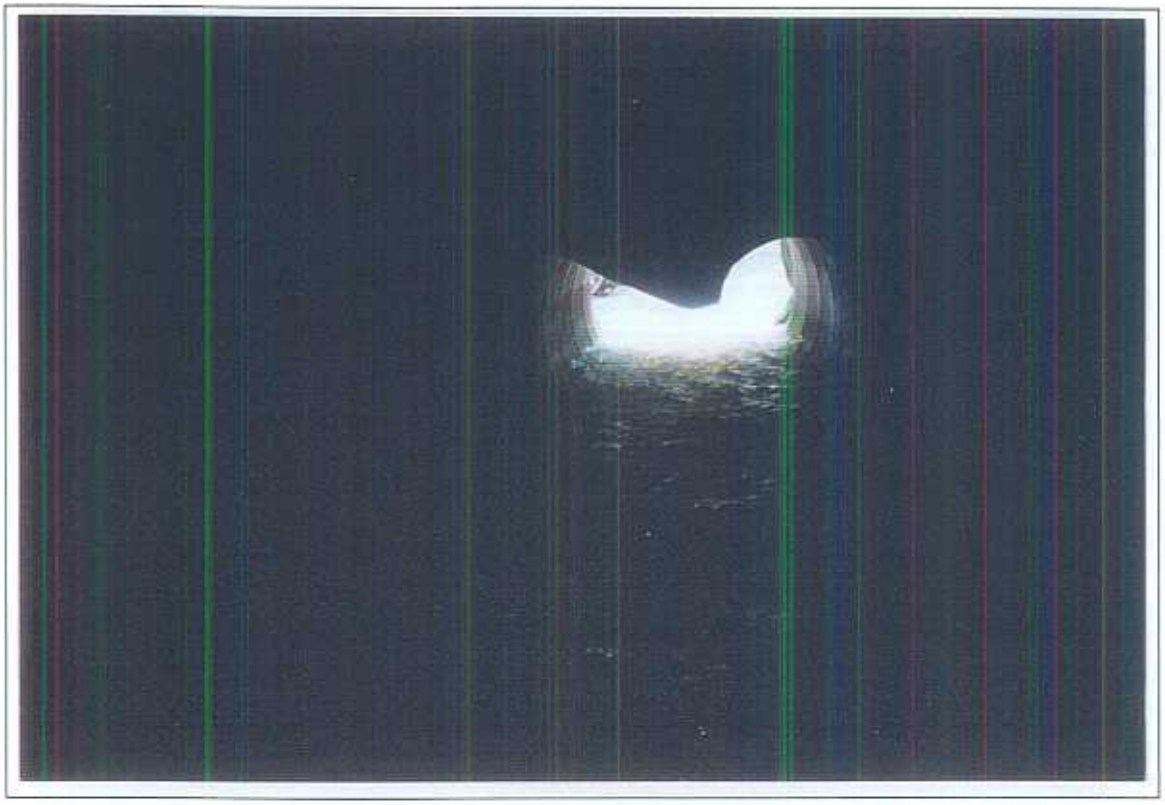

Photo Plate 15. Reach 5. (Site 4) Damaged 1200 mm diameter culvert on mainstem resulting in reduced capacity (see photo plate 13).

Photo Plate 16. Tributary channel to Reach 3. Evidence of overtopping at 1200 mm diameter culvert crossing. (Site 3)

Photo Plate 17. Tributary to Reach 4 (Site 13). Two culverts (600 mm and 300 mm diameter) overtopped in 1999 freshet.

Photo Plate 18. Tributary to Reach 4 (Site 13). Two culverts (600 mm and 300 mm diameter) overtopped in 1999 freshet.

Photo Plate 19. Reach 4. Site 2 mainstem. Bedrock controlled cascade into lower valley.

Photo Plate 20. Site 7. West tributary. Bedrock and wood controlled cascade into lower valley.

Photo Plates 21 (upper) and 22 (lower). Reach 5 tributary Site 10. Old disused road intercepting and redirecting drainage several hundred metres across the plateau.

Photo Plate 23. East sub-basin. Site 6. Sand and gravel deposits upstream of the road crossing.

Photo Plate 24 (above). Freeman Brook water intake structures where surface flows emerge.

Photo Plate 25 (right). Steep access following Freeman Brook up to storage ponds. Note scoured channel.

Photo Plate 26 (above). Berm constructed to create storage ponds at the top of Freeman Brook. Note waterlines.

Photo Plate 27 (right). Culvert section used as overflow from ponds into upper Freeman Brook.

Photo Plate 28. Natural (dry) draw connecting storage ponds to Corning Creek mainstem (unmapped).

Photo Plate 29. Natural (dry) draw connecting storage ponds to Corning Creek mainstem (unmapped).

CHANNEL ASSESSMENT - PHOTO DOCUMENTATION

Survey Date	Watershed Name	Watershed Code	Agency	Crew	Roll #	Frame #	Reach #	Sub - Reach #	Chainage	LRAP	Map # TRIM	Photo Direction	Focal Length (mm)	Scale Item	Comments
98/11/03	Corning Creek		C138	AB/JD	CC1	7			0+000	NO		Up	Std.	-	Confluence with Shuswap Lake.
98/11/03	Corning Creek		C138	AB/JD	CC1	8			0+050	NO		Up	Std.	-	Dry channel.
98/11/03	Corning Creek		C138	AB/JD	CC1	9			0+100	NO		Up	Std.	-	Dry channel. Note cut stumps and foot bridge.
98/11/03	Corning Creek		C138	AB/JD	CC1	10			0+100	NO		Dn	Std.	-	Dry channel with no LWD.
98/11/03	Corning Creek		C138	AB/JD	CC1	11			0+100	NO		Xs	Std.	-	Scour line on bank.
98/11/03	Corning Creek		C138	AB/JD	CC1	12			0+100	NO		Up	Std.	-	Dry channel with no LWD.
98/11/03	Corning Creek		C138	AB/JD	CC1	13			0+150	NO		Dn	Std.	-	Dry channel with no LWD. Note cut stumps.
98/11/03	Corning Creek		C138	AB/JD	CC1	14			0+200	NO		Xs	Std.	-	Small LWD jam.
98/11/03	Corning Creek		C138	AB/JD	CC1	15			0+250	NO		Xs	Std.	-	Old overbank deposition noted.
98/11/03	Corning Creek		C138	AB/JD	CC1	16			0+250	NO		Xs	Std.	-	Tree farm (cleared land) on right bank with undermined fence line.
98/11/03	Corning Creek		C138	AB/JD	CC1	17			0+350	NO		Up	Std.	-	Bent trees adjacent to stream.
98/11/03	Corning Creek		C138	AB/JD	CC1	18			0+350	NO		Up	Std.	-	Bent trees adjacent to stream.
98/11/03	Corning Creek		C138	AB/JD	CC1	19			0+450	NO		Dn	Std.	-	Scoured bank along fence line.
98/11/03	Corning Creek		C138	AB/JD	CC1	20			0+450	NO		Up	Std.	Dog	Scoured bank along fence line. Note cut stumps.
98/11/03	Corning Creek		C138	AB/JD	CC1	21			0+500	NO		Up	Std.	Bridge	Highway bridge.
98/11/03	Corning Creek		C138	AB/JD	CC1	22			0+550	NO		Up	Std.	-	Asphalt in channel to protect left bank.
98/11/03	Corning Creek		C138	AB/JD	CC1	23			0+600	NO		Xs	Std.	-	Old bridge crossing recently removed and road deactivated.
98/11/03	Corning Creek		C138	AB/JD	CC1	24			0+700	NO		Dn	Std.	-	Slightly widened section with some cobble deposition.
98/11/03	Corning Creek		C138	AB/JD	CC1	25			0+760	NO		Dn	Std.	Dog	Left bank becomes steep.
98/11/03	Corning Creek		C138	AB/JD	CC2	1			0+800	NO		Up	Std.	-	Landslide on left bank. <5 years old with debris pile in channel.
98/11/03	Corning Creek		C138	AB/JD	CC2	2			0+800	NO		Xs	Std.	-	Landslide on left bank. <5 years old with debris pile in channel.
98/11/03	Corning Creek		C138	AB/JD	CC2	3			0+800	NO		Dn	Std.	-	Representative.
98/11/03	Corning Creek		C138	AB/JD	CC2	4			0+850	NO		Xs	Std.	-	Failure on left bank.
98/11/03	Corning Creek		C138	AB/JD	CC2	5			0+850	NO		Xs	Std.	-	Failure on left bank.
98/11/03	Corning Creek		C138	AB/JD	CC2	6			0+850	NO		Xs	Std.	-	Failure on left bank.
98/11/03	Corning Creek		C138	AB/JD	CC2	7			0+900	NO		Dn	Std.	Dog	Channel width increases. Bank scour noted.
98/11/03	Corning Creek		C138	AB/JD	CC2	8			0+900	NO		Up	Std.	-	Channel width increases. Bank scour noted.
98/11/03	Corning Creek		C138	AB/JD	CC2	9			0+900	NO		Dn	Std.	-	Channel width increases. Bank scour noted.
98/11/03	Corning Creek		C138	AB/JD	CC2	10			0+950	NO		Xs	Std.	-	Right valley wall slumping. Cleared of trees above.
98/11/03	Corning Creek		C138	AB/JD	CC2	11			0+950	NO		Xs	Std.	-	Right valley wall slumping. Cleared of trees above.
98/11/03	Corning Creek		C138	AB/JD	CC2	12			0+980	NO		Dn	Std.	-	Water intake with rock weir.
98/11/03	Corning Creek		C138	AB/JD	CC2	13			0+980	NO		Xs	Std.	-	Old overbank deposition noted.
98/11/03	Corning Creek		C138	AB/JD	CC2	14			1+020	NO		Up	Std.	-	Representative.
98/11/03	Corning Creek		C138	AB/JD	CC2	15			1+050	NO		Up	Std.	Dam	Major intake structure. Avulsion on left bank.
98/11/03	Corning Creek		C138	AB/JD	CC2	16			1+200	NO		Up	Std.	-	Bedrock canyon upstream of concrete structure.
98/11/03	Corning Creek		C138	AB/JD	CC2	17			1+200	NO		Xs	Std.	-	Major intake structure. Avulsion on left bank.
98/11/03	Corning Creek		C138	AB/JD	CC2	18			1+200	NO		Dn	Std.	Dam	Major intake structure.
98/11/03	Corning Creek		C138	AB/JD	CC2	19			1+200	NO		-	Std.	Book	Backfilled with sands/gravels and cobbles.
98/11/03	Corning Creek		C138	AB/JD	CC2	20			1+200	NO		Dn	Std.	Dam	Major intake structure. Backfilled with substrates.
98/11/03	Corning Creek		C138	AB/JD	CC2	21			1+300	NO		Up	Std.	-	Bedrock canyon.
98/11/03	Corning Creek		C138	AB/JD	CC2	22			1+320	NO		Up	Std.	-	Debris jam at canyon entrance.
98/11/03	Corning Creek		C138	AB/JD	CC2	23			1+320	NO		Up	Std.	-	Debris jam at canyon entrance backfilled with sand, gravel and cobble.
98/11/03	Corning Creek		C138	AB/JD	CC2	24			1+320	NO		Up	Std.	-	Debris jam at canyon entrance backfilled with sand, gravel and cobble.
98/11/03	Corning Creek		C138	AB/JD	CC2	25			1+320	NO		Dn	Std.	-	Stevens recorder 2 m above PWL in canyon.

CHANNEL ASSESSMENT - PHOTO DOCUMENTATION

Survey Date	Watershed Name	Watershed Code	Agency	Crew	Roll #	Frame #	Reach #	Sub - Reach #	Chainage	LRAP	Map # TRIM	Photo Direction	Focal Length (mm)	Scale Item	Comments
98/11/13	Corning Creek		C138	AB/SD	CC3	1						UP	35	PERSON	Scoured ditch just beyond end of switchback road.
98/11/13	Corning Creek		C138	AB/SD	CC3	2						UP	35	-	Scoured ditch just beyond end of switchback road.
98/11/13	Corning Creek		C138	AB/SD	CC3	3						DN	35	PERSON	Scoured ditch just beyond end of switchback road.
98/11/13	Corning Creek		C138	AB/SD	CC3	4						DN	35	PERSON	Scoured ditch just beyond end of switchback road.
98/11/13	Corning Creek		C138	AB/SD	CC3	5						DN	35	-	Scoured ditch just beyond end of switchback road.
98/11/13	Corning Creek		C138	AB/SD	CC3	6						DN	35	-	Scoured ditch just beyond end of switchback road.
98/11/13	Corning Creek		C138	AB/SD	CC3	7						-	35	PERSON	Ditch swings down and crosses old trail.
98/11/13	Corning Creek		C138	AB/SD	CC3	8						UP	35	PERSON	Ditch opens into 5m wide failure then reconcentrates.
98/11/13	Corning Creek		C138	AB/SD	CC3	9						UP	35	PERSON	Heavily scoured sections on 60 - 100% slope. Steeper sections, exposed bedrock.
98/11/13	Corning Creek		C138	AB/SD	CC3	10						UP	35	PERSON	Heavily scoured sections on 60 - 100% slope. Steeper sections, exposed bedrock.
98/11/13	Corning Creek		C138	AB/SD	CC3	11						UP	35	PERSON	Ditch continues downstream.
98/11/13	Corning Creek		C138	AB/SD	CC3	12						UP	35	-	Exposed bedrock.
98/11/13	Corning Creek		C138	AB/SD	CC3	13						UP	35	-	Exposed bedrock.
98/11/13	Corning Creek		C138	AB/SD	CC3	14						DN	35	PERSON	Ditch nearing Corning Creek.
98/11/13	Corning Creek		C138	AB/SD	CC3	15						DN	35	-	Ditch falls into creek over bedrock face. Significant sediment source.
98/11/13	Corning Creek		C138	AB/SD	CC3	16						UP	35	-	Ditch falls into creek over bedrock face. Significant sediment source.
98/11/13	Corning Creek		C138	AB/SD	CC3	17						UP	35	-	Ditch falls into creek over bedrock face. Significant sediment source.
98/11/13	Corning Creek		C138	AB/SD	CC3	18		Mainstem				DN	35	PERSON	30 m downstream - sediment wedge caused by trees in creek.
98/11/13	Corning Creek		C138	AB/SD	CC3	19		Mainstem				UP	35	-	30 m downstream - sediment wedge caused by trees in creek.
98/11/13	Corning Creek		C138	AB/SD	CC3	20		Mainstem				UP	35	PERSON	Downed trees causing debris jam, sediment wedge caused by another 6 m x 45 m failure.
98/11/13	Corning Creek		C138	AB/SD	CC3	21		Mainstem				UP	35	-	-
98/11/13	Corning Creek		C138	AB/SD	CC3	22		Mainstem				UP	35	-	-
98/11/13	Corning Creek		C138	AB/SD	CC3	23		Mainstem				DN	35	-	-
98/11/13	Corning Creek		C138	AB/SD	CC3	24		Mainstem				UP	35	-	-
98/11/13	Corning Creek		C138	AB/SD	CC3	25		East Fork	0+040			UP	35	PERSON	Lower section of east fork near confluence with mainstem.
98/11/13	Corning Creek		C138	AB/SD	CC3	26		East Fork	0+075			UP	35	PERSON	Channel splits around SWD jam - cobble/boulder wedge, otherwise mostly stable.
98/11/13	Corning Creek		C138	AB/SD	CC3	29		East Fork	0+124			-	35	PERSON	Small 10 x 10 m right bank failure. Debris in creek causing debris jam.
98/11/13	Corning Creek		C138	AB/SD	CC3	31		East Fork	0+238			UP	35	PERSON	2 m high debris jam backfilled with cobbles.
98/11/13	Corning Creek		C138	AB/SD	CC3	32		East Fork	0+238			UP	35	-	2 m high debris jam backfilled with cobbles and large, leaning tree.
98/11/13	Corning Creek		C138	AB/SD	CC3	33		East Fork	0+238			UP	35	-	2 m high debris am backfilled with cobbles.
98/11/13	Corning Creek		C138	AB/SD	CC3	34		Mainstem	0+000			UP	35	PERSON	At confluence with east fork. Mainstem is 4x larger.
98/11/13	Corning Creek		C138	AB/SD	CC3	35		Mainstem	0+000			UP	35	-	Mainstem is aggraded with sediment wedges.
98/11/13	Corning Creek		C138	AB/SD	CC3	36		Mainstem	0+000			DN	35	-	Downstream banks slightly scoured. Recently deposited gravels.
98/11/13	Corning Creek		C138	AB/SD	CC4	1		Mainstem	0+041			UP	35	PERSON	Log jam with cobble/boulder deposition throughout.
98/11/13	Corning Creek		C138	AB/SD	CC4	2		Mainstem	0+041			UP	35	PERSON	Log jam with cobble/boulder deposition throughout.
98/11/13	Corning Creek		C138	AB/SD	CC4	3		Mainstem	0+041			UP	35	PERSON	Sand patch found in debris jam deposition.
98/11/13	Corning Creek		C138	AB/SD	CC4	4		Mainstem	0+097			UP	35	PERSON	Confinement increasing. Bedrock on left bank. Channel still A2 and partially dewatered.
98/11/13	Corning Creek		C138	AB/SD	CC4	5		Mainstem	0+191			UP	35	PERSON	4 m high log jam against bedrock knob backfilled with cobble.
98/11/13	Corning Creek		C138	AB/SD	CC4	6		Mainstem	0+191			UP	35	PERSON	Channel dewatered above log jam.
98/11/13	Corning Creek		C138	AB/SD	CC4	7		Mainstem	0+370			-	35	-	Bedrock waterfall associated with water track followed from top.
98/11/13	Corning Creek		C138	AB/SD	CC4	8		Mainstem	0+430			UP	35	-	Creek appears more stable upstream. Slightly aggraded, some moss on cobbles.
98/11/13	Corning Creek		C138	AB/SD	CC4	9		Mainstem	0+514			UP	35	PERSON	Bedrock control in channel - mossy blocks. Channel more stable, slightly scoured banks.
98/11/13	Corning Creek		C138	AB/SD	CC4	10		Mainstem	0+562			UP	35	PERSON	Numerous fallen trees with cobble/gravel sediment wedge to 1.5m. Patch of windfall on left bank.
98/11/13	Corning Creek		C138	AB/SD	CC4	11		Mainstem	0+611			-	35	PERSON	Tributary gully on right bank. No flow but evidence of higher flows and scour. Occasional sediment source.
98/11/13	Corning Creek		C138	AB/SD	CC4	12		Mainstem	0+611			-	35	PERSON	Small fan. Big trees, valley opens slightly - less bedrock.
98/11/13	Corning Creek		C138	AB/SD	CC4	13		Mainstem	0+712			DN	35	PERSON	Cobble wedge/debris flow deposit on left bank.
98/11/13	Corning Creek		C138	AB/SD	CC4	14		Mainstem	0+747			DN	35	PERSON	Old debris flow lobe. Rafted jam on left bank. Juvenile conifers revegetating.
98/11/13	Corning Creek		C138	AB/SD	CC4	15		Mainstem	0+747			UP	35	PERSON	Opens up to large deposit upstream of jam. Lots of juvenile cedars revegetating.
98/11/13	Corning Creek		C138	AB/SD	CC4	16		Mainstem	0+803			UP	35	-	Debris jam with elevated mid-channel bar.
98/11/13	Corning Creek		C138	AB/SD	CC4	17		Mainstem	0+877			UP	35	PERSON	Toe of large failure.
98/11/13	Corning Creek		C138	AB/SD	CC4	18		Mainstem	0+877			-	35	PERSON	Older failure - partly revegetated. Significant sediment source. Clay/sandy loam raveling.
98/11/13	Corning Creek		C138	AB/SD	CC4	19		Mainstem	0+877			-	35	PERSON	Older failure - partly revegetated. Significant sediment source. Clay/sandy loam raveling.
98/11/13	Corning Creek		C138	AB/SD	CC4	20		Mainstem	0+877			-	35	-	Older failure - partly revegetated. Significant sediment source. Clay/sandy loam raveling.
98/11/13	Corning Creek		C138	AB/SD	CC4	21		Mainstem	0+877			-	35	-	Failure with unstable lip.
98/11/13	Corning Creek		C138	AB/SD	CC4	22		Mainstem	0+877			-	35	-	Failure with unstable lip.
98/11/13	Corning Creek		C138	AB/SD	CC4	23		Mainstem	0+877			-	35	-	Failure.
98/11/13	Corning Creek		C138	AB/SD	CC4	24		Mainstem	0+877			-	35	-	Flat area at top of slide. Flow can go in numerous directions.
98/11/13	Corning Creek		C138	AB/SD	CC4	25		Mainstem	0+877			-	35	-	Flat area at top of slide. Flow can go in numerous directions.
98/11/13	Corning Creek		C138	AB/SD	CC4	26		Mainstem	0+877			-	35	-	Follow failure up to well-defined, natural gully.
98/11/13	Corning Creek		C138	AB/SD	CC4	27		Mainstem	0+877			-	35	-	Follow failure up to well-defined, natural gully.
98/11/13	Corning Creek		C138	AB/SD	CC4	28		Mainstem	1+000			-	35	-	2nd failure - shallow surface slide in clay till, little surface armouring. Trees leaning across creek.
98/11/13	Corning Creek		C138	AB/SD	CC4	29		Mainstem	1+000			-	35	-	2nd failure - shallow surface slide in clay till, little surface armouring. Trees leaning across creek.

CHANNEL ASSESSMENT - PHOTO DOCUMENTATION

Survey Date	Watershed Name	Watershed Code	Agency	Crew	Roll #	Frame #	Reach #	Sub - Reach #	Chainage	LRAP	Map # TRIM	Photo Direction	Focal Length (mm)	Scale Item	Comments
98/11/13	Corning Creek		C138	AB/SD	CC4	30		Mainstem	1+000			-	35	-	2nd failure - shallow surface slide in clay till, little surface armouring. Trees leaning across creek.
98/11/13	Corning Creek		C138	AB/SD	CC4	31		Mainstem	1+000			UP	35	-	Failure causing trees to lean across creek.
98/11/13	Corning Creek		C138	AB/SD	CC4	32		Mainstem	1+057			DN	35	-	Debris flow lobe on left bank 20 - 50 years old.
98/11/13	Corning Creek		C138	AB/SD	CC4	33		Mainstem	1+090			-	35	PERSON	Small bank failure on left bank - 10 x 12 m. Trees in crrek, cobble wedge.
98/11/13	Corning Creek		C138	AB/SD	CC4	34		Mainstem	1+180			UP	35	PERSON	Creek widens - possible debris flow deposit area.
98/11/13	Corning Creek		C138	AB/SD	CC4	35		Mainstem	1+460			-	35	-	Creek appears mostly stable - occasional wedge - minimal bank erosion.
98/12/18	Corning Creek		C138	AB/JD	CC5	5		-	-	No		-	Std.	PERSON	Freeman Brook intake.
98/12/18	Corning Creek		C138	AB/JD	CC5	6		-	-	No		-	Std.	-	Freeman Brook intake.
98/12/18	Corning Creek		C138	AB/JD	CC5	7		-	-	No		-	Std.	-	Freeman Brook access road. Possible avulsion route.
98/12/18	Corning Creek		C138	AB/JD	CC5	8		-	-	No		-	Std.	-	Freeman Brook road crossing.
98/12/18	Corning Creek		C138	AB/JD	CC5	9		-	-	No		-	Std.	-	Freeman Brook spring.
98/12/18	Corning Creek		C138	AB/JD	CC6	10		-	-	No		-	Std.	-	Freeman Brook road crossing.
98/12/18	Corning Creek		C138	AB/JD	CC5	11		-	-	No		-	Std.	PERSON	Freeman Brook.
98/12/18	Corning Creek		C138	AB/JD	CC5	12		-	-	No		-	Std.	DOG	Freeman Brook. Scoured channel out of natural channel.
98/12/18	Corning Creek		C138	AB/JD	CC5	13		-	-	No		-	Std.	-	Freeman Brook. Scoured ditch. No natural channel.
98/12/18	Corning Creek		C138	AB/JD	CC5	14		-	-	No		-	Std.	PERSON	Berm/dyke for storage pond at top of Freeman Brook.
98/12/18	Corning Creek		C138	AB/JD	CC5	15		-	-	No		-	Std.	-	Overflow 1/2 culvert on berm/storage pond for overflow into Freeman Brook.
98/12/18	Corning Creek		C138	AB/JD	CC5	16		-	-	No		-	Std.	-	Natural draw heading toward Corning Creek from Freeman Brook ponds.
98/12/18	Corning Creek		C138	AB/JD	CC5	17		-	-	No		-	Std.	PERSON	Clearing in draw betrween storage ponds (Freeman) and Corning Creek.
98/12/18	Corning Creek		C138	AB/JD	CC5	18		-	-	No		-	Std.	DOG	Draw connecting to Corning valley from storage ponds.
98/12/18	Corning Creek		C138	AB/JD	CC5	19		-	-	No		-	Std.	PERSON	Draw connecting to Corning Creek from storage ponds.
98/12/18	Corning Creek		C138	AB/JD	CC5	20		-	-	No		-	Std.	PERSON	Draw connecting to Corning Creek from storage ponds.
98/12/18	Corning Creek		C138	AB/JD	CC5	21		-	-	No		-	Std.	-	Draw connecting to Corning Creek from storage ponds.
98/12/18	Corning Creek		C138	AB/JD	CC5	22		-	-	No		-	Std.	-	Corning Creek fan.
98/12/18	Corning Creek		C138	AB/JD	CC5	24		-	-	No		-	Std.	-	Corning Creek from across Shuswap Lake.
98/12/18	Corning Creek		C138	AB/JD	CC5	25		-	-	No		-	Std.	-	Corning Creek from across Shuswap Lake.
				AB/JD											
98/11/09	Corning Creek		C138	AB/JD	CC0	2		-	-	NO		-	Std.	-	Corning Creek fan.
98/11/09	Corning Creek		C138	AB/JD	CC0	3		-	-	NO		-	Std.	-	Corning Creek fan.
98/11/09	Corning Creek		C138	AB/JD	CC0	4		-	-	NO		-	Std.	-	Lower cutblock on right bank of Corning Creek.
98/11/09	Corning Creek		C138	AB/JD	CC0	5		-	-	NO		-	Std.	-	Blurry slide photo.
98/11/09	Corning Creek		C138	AB/JD	CC0	6		-	-	NO		-	Std.	-	Blurry slide photo.
98/11/09	Corning Creek		C138	AB/JD	CC0	7		-	-	NO		-	Std.	-	Blurry slide photo.
98/11/09	Corning Creek		C138	AB/JD	CC0	8		-	-	NO		-	Std.	-	Blurry slide photo.
98/11/09	Corning Creek		C138	AB/JD	CC0	9		-	-	NO		-	Std.	-	Blurry slide photo.
98/11/09	Corning Creek		C138	AB/JD	CC0	10		-	-	NO		-	Std.	-	Blurry slide photo.
98/11/09	Corning Creek		C138	AB/JD	CC0	11		-	-	NO		-	Std.	-	Slide along Corning Creek mainstem.
98/11/09	Corning Creek		C138	AB/JD	CC0	12		-	-	NO		-	Std.	-	Slide along Corning Creek mainstem.
98/11/09	Corning Creek		C138	AB/JD	CC0	13		-	-	NO		-	Std.	-	-
98/11/09	Corning Creek		C138	AB/JD	CC0	14		-	-	NO		-	Std.	-	Channel above main confluence.
98/11/09	Corning Creek		C138	AB/JD	CC0	15		-	-	NO		-	Std.	-	-
98/11/09	Corning Creek		C138	AB/JD	CC0	16		-	-	NO		-	Std.	-	Scotch Creek fan.
98/11/09	Corning Creek		C138	AB/JD	CC0	17		-	-	NO		-	Std.	-	Scotch Creek.
98/11/09	Corning Creek		C138	AB/JD	CC0	18		-	-	NO		-	Std.	-	Scotch Creek.
98/11/09	Corning Creek		C138	AB/JD	CC0	19		-	-	NO		-	Std.	-	Scotch Creek.