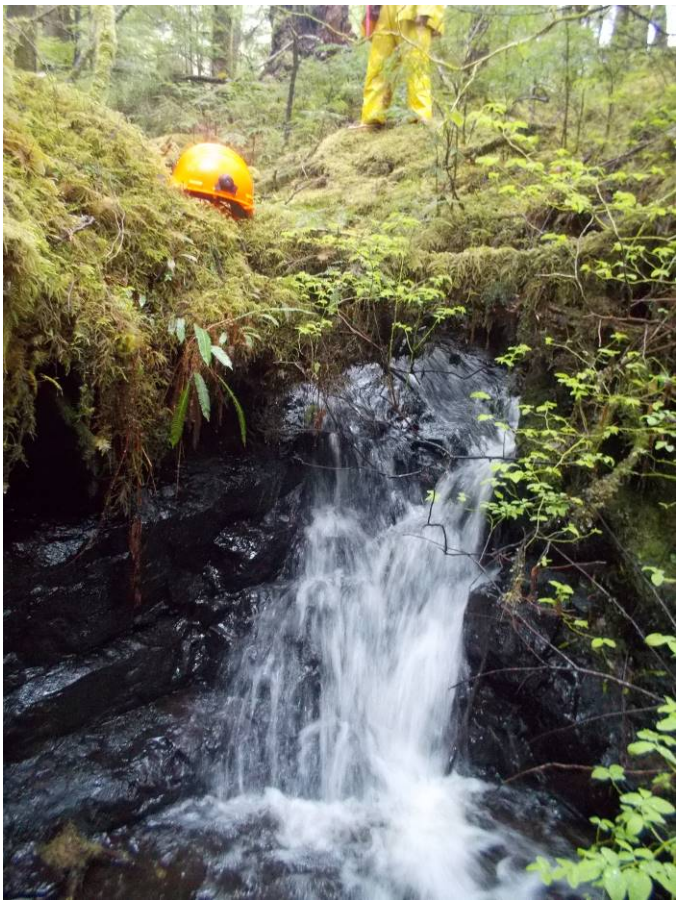
Taan Forest Ltd. - Stream Assessment Report for Proposed Harvest Blocks IAN001 and IAN002



PACIFICUS Biological Services Ltd

T: 250-949-9450 F:250-949-7656 PO Box 2760 Port Hardy, BC V0N 2P0
info@pacificus.ca www.pacificus.ca

Stream Assessment Report for Proposed Harvest Blocks IAN001 and IAN002

Prepared for:
Rodney Smith, RFT
Operations Planner
Taan Forest Ltd.

Prepared by:
Trevor Nowak, BSc & RBTech

Reviewed by:
Doug McCorquodale, RPBio.

Report Completion Date:
May 2, 2016

Box 2760
Port Hardy, B.C.
V0N 2P0

Table of Contents

Introduction 1

Methodology 1

Block Overview 2

Stream Characteristics, Sampling Results, and Reach Classifications for Streams Associated with Proposed Blocks IAN001 and IAN002 4

Stream 23 4

Stream 23A 5

Stream 8A 7

Stream 9 8

Summary for streams assessed in Blocks IAN001 and IAN002: 11

Introduction

Proposed harvest plans in the vicinity of Ian Lake on Graham Island, in the Haida Gwaii archipelago of British Columbia, are affected by environmental regulations including; the *Forest and Range Practices Act* (FRPA) and the Haida Gwaii Land Use Objectives Order. The Order establishes Ecosystem-Based Management (EBM) on Haida Gwaii which balances cultural, ecological, social and economic objectives. The Haida Gwaii Land Use Objectives Order is a direct outcome of the 2007 Haida Gwaii Strategic Land Use Agreement[1] (between the Province of BC and the Haida Nation).

As a result, the watercourses adjacent to and within the proposed blocks were examined and sampled by Pacificus' qualified environmental professionals and stream classifications are presented based on these regulations.

This report identifies, describes and classifies 3 watercourses located within or adjacent to the proposed harvest Blocks IAN001 and IAN002.

Methodology

The proposed harvest blocks were examined by Trevor Nowak, BSc. & RBTech, and Ryan Sirges, BSc., from Pacificus Biological Services Ltd. (Pacificus) accompanied by James Hageman from Taan Forest Ltd. (Taan) on April 4 and 7 , 2016. Weather on the dates of examination was overcast light precipitation. Flow in streams was moderate on both occasions. Water temperature on April 4 was 8°C and the conductivity was 71µS/cm.

Quantitative measurements collected included; channel gradients, reach lengths, channel widths, and water temperatures. Qualitative data on channel composition, riparian vegetation and other ecological factors pertinent to future development were also observed and recorded. Fish habitat features and potential utilization values were observed and noted.

Fish presence was determined via electrofishing and in some cases interpreted from channel gradient and ecological features. Captured fish were identified to species and released in a timely manner. Distances were determined by hip chain or GPS.

[1] Ministry of Agriculture and Lands. 2007. Haida Gwaii Strategic Land Use Agreement. https://www.for.gov.bc.ca/tasb/slrp/docs/Haida_SLUPA_Dec_07.pdf

Final results were mapped to 1:5,000 map sheets (Figure 1). Stream reaches were described to identify stream lengths of similar classification, with less focus on morphological changes within the examined channels. All streams were examined pre-harvest and width measurements taken reflect current stream conditions. Harvest activities adjacent to classified streams may result in stream widening.

Block Overview

The proposed harvest blocks are located approximately 30km due west of Port Clements on Graham Island of the Haida Gwaii. Streams 8A and 9, associated with Block IAN002 flow directly into Ian Lake (WSC: 940-768700). Stream 23, associated with Block IAN001 flows into Donna Creek (WSC: 940-768700-68900). No fisheries information exists for the streams examined within this report; however, the provincial Ministry of Environment's Fish Inventories Data Queries[2] reports the presence of chum (*Oncorhynchus keta*), coho (*O. kisutch*), pink (*O. gorbuscha*) and sockeye (*O. nerka*) salmon, as well as cutthroat trout (*O. clarkii*), rainbow trout and steelhead (*O. mykiss*), Dolly Varden char (*Salvelinus malma*) and threespine stickleback (*Gasterosteus aculeatus*) in Ian Lake. In addition, reports of coho salmon (*O. kisutch*), cutthroat trout (*O. clarkii*) and Dolly Varden char (*S. Malma*) exist for Donna Creek.

.

[2] BC Ministry of Environment – Fisheries Inventory Data Queries - http://a100.gov.bc.ca/pub/fidq/infoSingleWaterbody.do, accessed on April 22, 2016.

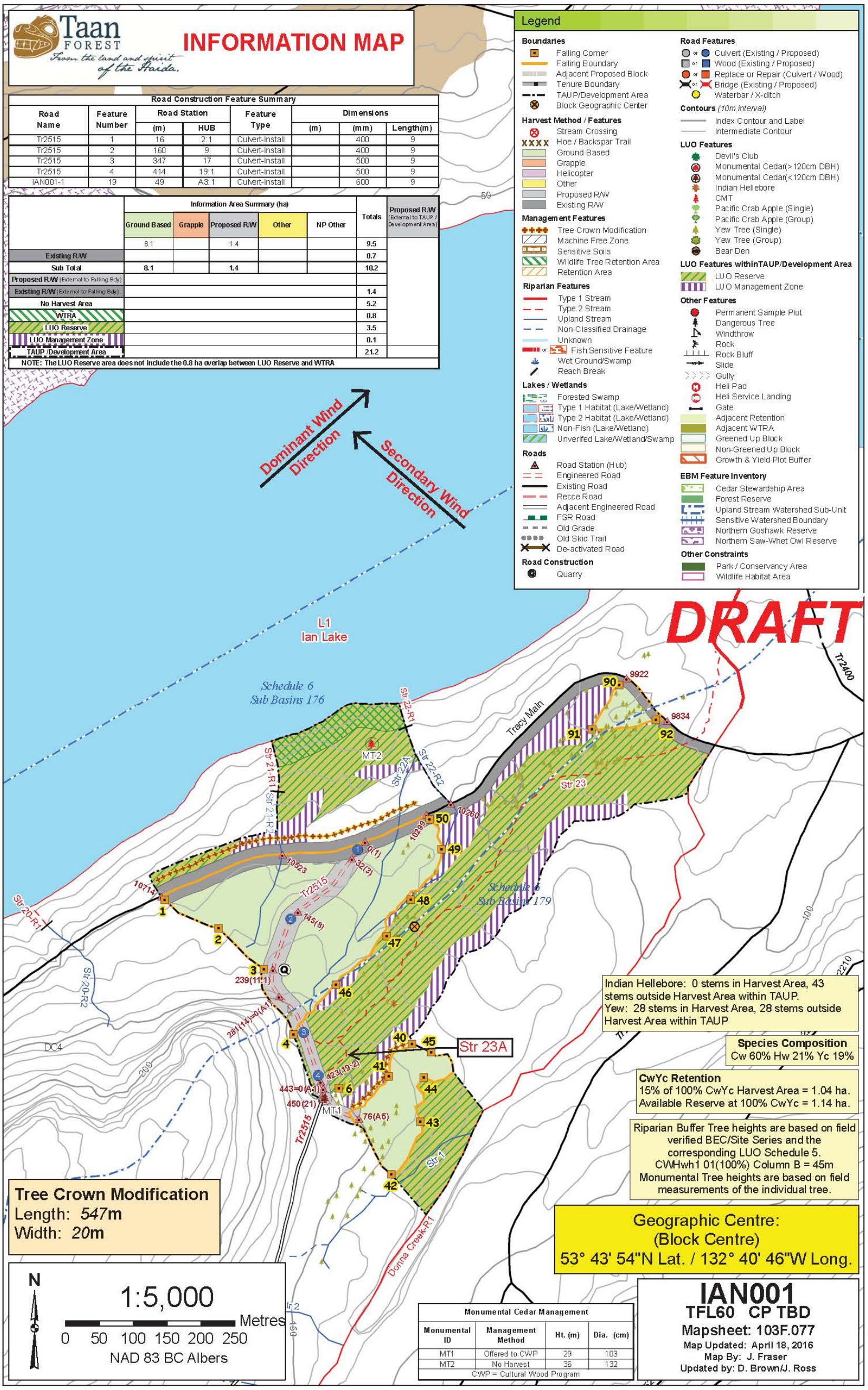


Figure 1. Classifications and reach breaks for streams within and adjacent to proposed Block IAN001 (stream locations and map scale are approximate).

*The base map has been produced by Taan Forest with locations of streams. The author has reviewed the map and confirmed the locations of stream classifications, reach breaks and fish barriers mentioned within this report.

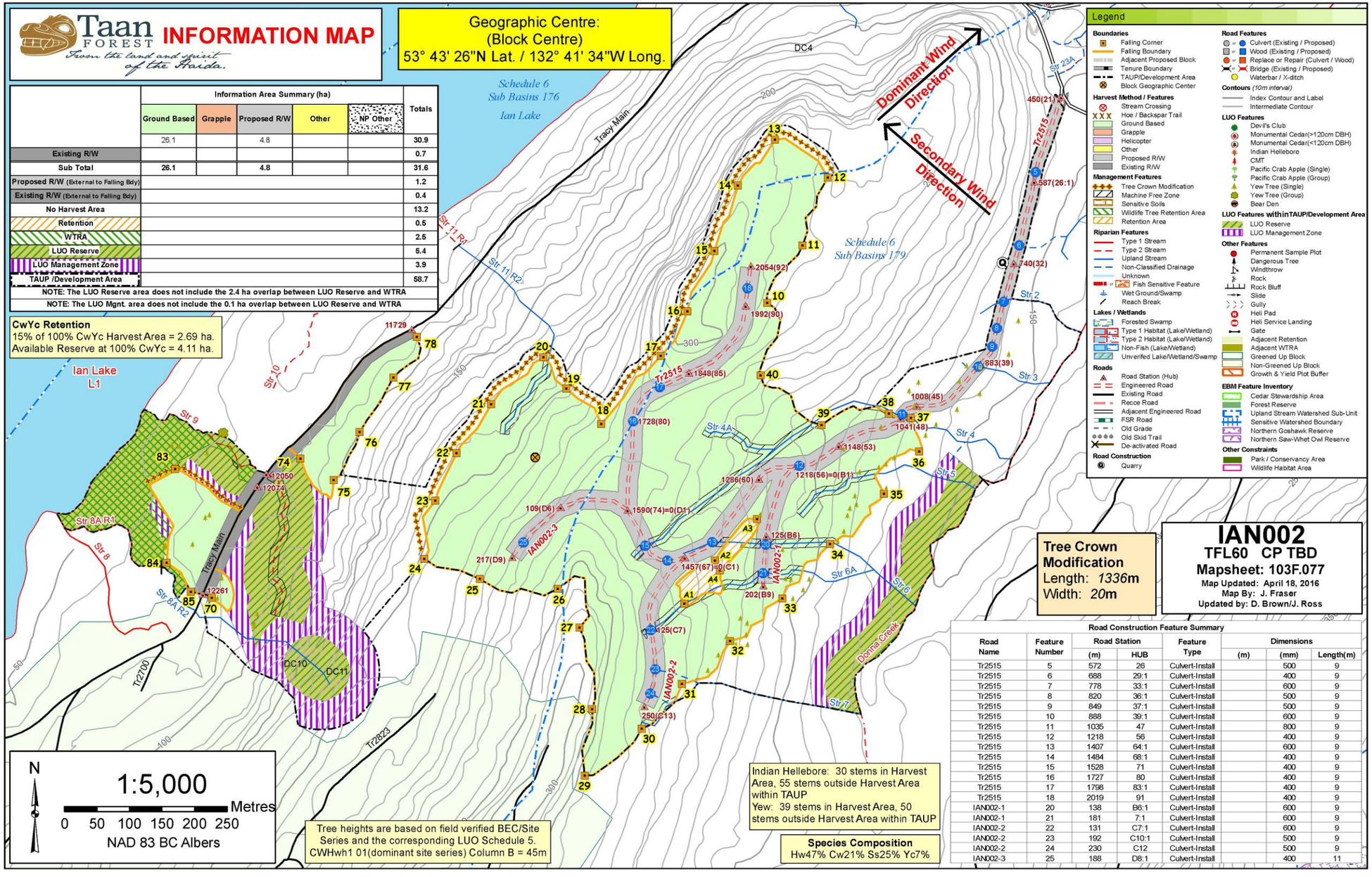


Figure 2. Classifications and reach breaks for streams within and adjacent to proposed Block IAN002 (stream locations and map scale are approximate).

*The base map has been produced by Taan Forest with locations of streams. The author has reviewed the map and confirmed the locations of stream classifications, reach breaks and fish barriers mentioned within this report.

Stream Characteristics, Sampling Results, and Reach Classifications for Streams Associated with Proposed Blocks IAN001 and IAN002

Stream 23

Stream 23 flows adjacent to the proposed block in a northeastern direction before forming a confluence with Donna Creek. The stream was assessed from a point located approximately 30m downstream of the Tracey Main road crossing. One reach was identified in the assessed portion of Stream 23.

The point of commencement (POC= 0+000) of Reach 1 in Stream 23 was located downstream of the Tracey Main road crossing (UTM= 8 U, 653452.04 m E, 5956542.40 m N). Upstream of the POC the stream was characterized by a well confined channel with step-pool morphology and a substrate composed of gravel and cobble. At approximately 0+035m, the stream flowed under the Tracey Main forestry road through a wood-box culvert (WBC). Upstream of the crossing the channel remained well confined, however morphology shifted to riffle-pool and the substrate was predominantly composed of fines and gravel (Photo 1). Overall, reach 1 of Stream 23 had an average channel width of 0.9m and a gradient that ranged from 2-16%. At approximately 0+655m, the channel began to flow sub-surface in sections. The confluence with a small tributary was located on the right-wetted bank at approximately 0+775m. Upstream of the confluence, the channel in Stream 23 became narrow and less scoured. The point of termination (POT) in Reach 1 of Stream 23 was located at 0+790m where flow sourced from seepage at the base of a sloped bank (652955.65 m E, 5955991.44 m N) (Photo 2). A survey of the terrain upslope of this point revealed only isolated pools of standing water over organic substrate and no connection to any adjacent watercourse. Electrofishing in Stream 23 resulted in one small cutthroat trout being captured.

Based on the average channel width, average gradient and confirmed presence of fish, **Reach 1 of Stream 23 was classified as a Type 2 stream.**

Photo 1. An upstream view of the channel in Reach 1 of Stream 23.

Photo 2. An upstream view of the POT in Stream 23 where flow sourced as seepage at the base of a sloped bank.

Stream 23A

Stream 23A flows adjacent to the proposed block. The stream was assessed upstream from the confluence with Stream 23. One reach was identified in the assessed portion of Stream 23A.

The POC of Reach 1 in Stream 23A was located at the confluence on the right-wetted bank of Stream 23 (652972.20 m E, 5955994.68 m N). Upstream of the POC, the reach was characterized by a narrow, poorly scoured channel with a substrate composed of organics and fines. The average channel width was approximately 0.5m and the gradient ranged from 7-10%. In general, the reach provided marginal rearing habitat in the form of small pools and undercut banks. The POT of Reach 1 in Stream 23A was located at approximately 0+035m where flow sourced from exposed seepage at the base of an overturned root wad (652969.37 m E, 5955961.31 m N). Upslope of this point flow was restricted to seepage and there was no indication of a connection to any adjacent watercourse. No electrofishing was conducted in Stream 23A; however, based on an unimpeded connection to a known fish-bearing water course (Stream 23) and the presence of marginal fish habitat, Reach 1 of Stream 23A received a default fish-bearing status.

Based on the average channel width, unimpeded fish access and presence of low gradient habitat, **Reach 1 of Stream 23A was classified as a Type 2 stream**.

Photo 3. A cross-channel (right-bank to left-bank) of the POT in Stream 23A.

Stream 8A

Stream 8A flows adjacent to the proposed block in a western direction. The stream was assessed downstream of the Tracey Main road crossing. Two reaches were identified in the assessed portion of Stream 8A.

The POC (0+000) of Reach 1 in Stream 8A was located downstream of the Tracey Main road crossing (651636.64 m E, 5955030.86 m N). Upstream of the POC the stream was characterized by a well confined channel with step-pool morphology and a substrate composed of gravel and cobble. The reach had an average channel width of 1.5m and the gradient ranged from 7-20%. At approximately 0+035m the stream flowed over an identified barrier to fish passage. This point defined a reach break in the assessed portion of Stream 8A. A total of 100 seconds of electrofishing in Reach 1 of Stream 8A resulted in one small cutthroat trout being captured (Photo 4).

Based on the average channel width, average gradient and confirmed presence of fish, **Reach 1 of Stream 8A was classified as a Type 2 stream**.

Photo 4. A juvenile cutthroat trout captured in Reach 1 of Stream 8A.

Reach 2 of Stream 8A commenced at 0+035m where the stream flowed from the base of a 1.5m vertical bedrock cascade with no plunge pool (651671.40 m E, 5955011.79 m N). Upstream of the barrier, the stream was characterized by a well-confined channel with a substrate composed of gravel and cobble. The average channel

width was 1.2m and the gradient ranged from 10-15%. At 0+100m, the stream flowed under the Tracey Main forestry road through a WBC (651720.85 m E, 5954973.76 m N). Immediately upstream of the road crossing, the assessment terminated where the stream flowed over another vertical bedrock cascade. Based on the surrounding terrain, the gradient increased upstream of this point and there was no indication of potential low gradient fish habitat further upstream. A total of 330 seconds of electrofishing in Reach 2 of Stream 8A resulted in no fish being captured or observed.

Based on the presence of a barrier and electrofishing results, **Reach 2 of Stream 8A was classified as an Upland Stream**.

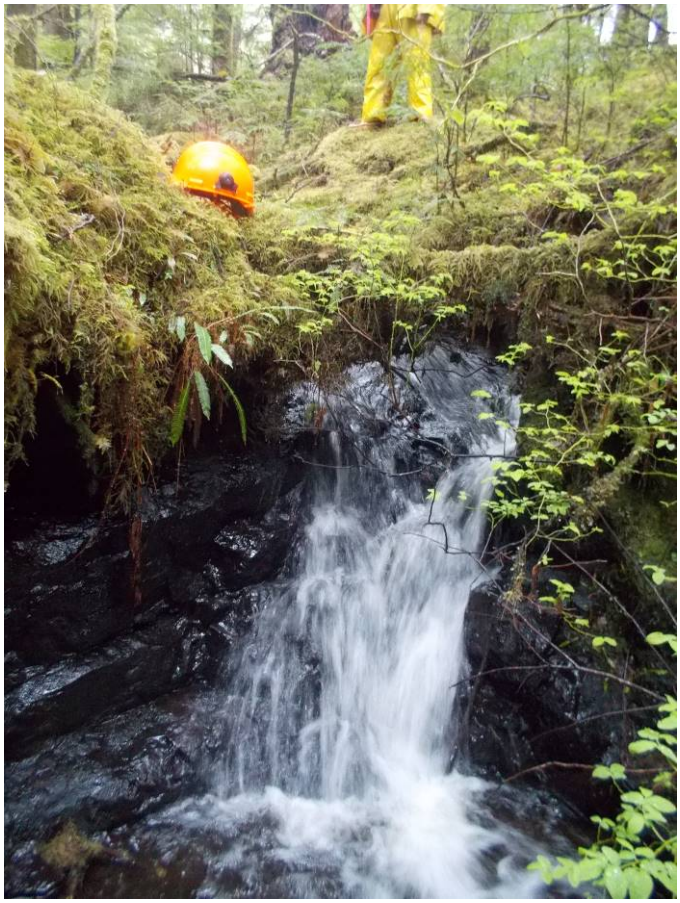


Photo 5. An upstream view of the 1.5m vertical bedrock cascade that created a barrier to upstream fish passage in Reach 2 of Stream 8A.

Stream 9

Stream 9 flows adjacent to the proposed block in a western direction. The stream was assessed from a point located approximately 120m downstream of the Tracey Main road crossing. One reach was identified in the assessed portion of Stream 9.

The POC (0+000) of Reach 1 in Stream 9 was located downstream of the Tracey Main road crossing (651719.04 m E, 5955227.20 m N). Upstream of the POC the stream was characterized by a well confined channel with step-pool morphology and a substrate composed of gravel and cobble (Photo 6). The average channel width was 1.0m and trh gradient ranged from 7-24%. At approximately 0+075m, the stream channel began to contain sections of sub-surface flow. The stream flowed under the Tracey Main forestry road through a WBC at approximately 0+120m. Upstream of the road, the channel characteristics remained unchanged. At approximately 0+245m, the channel became poorly scoured and contained sections with moss-covered substrate. The POT of Stream 9 was located at 0+275m (651867.70 m E, 5955037.21 m N) where flow became restricted to seepage through moss and organic substrate (Photo 7). Upslope of this point flow sourced from exposed seepage at the base of a large overturned root-wad. A survey of the surrounding terrain revealed no connection any adjacent watercourse. Overall, the reach provided good fish habitat in the form of pools up to 0.3m in depth, undercut banks and cover provided by large and small woody debris. Electrofishing resulted in the capture of a small cutthroat near the POC of the reach.

Based on the average channel width, average gradient and confirmed presence of fish, **Reach 1 of Stream 9 was classified as a Type 2 stream.**

Photo 6. An upstream view of the channel in Reach 1 of Stream 9 showing typical characteristics.

Photo 7. An upstream view of the POT of Reach 1 in Stream 9 where flow becomes restricted to seepage.

Summary for streams assessed in Blocks IAN001 and IAN002:

Table 1. Summary table of all reaches examined in proposed Blocks IAN001 and IAN002.

Stream	Reach	Width (m)	Gradient (%)	Fish Species*	Class
23	1	0.9	2-16	CT	Type 2
23A	1	0.5	7-10	NFS	Type 2
8A	1	1.5	7-20	CT	Type 2
	2	1.2	10-15	NFS	Upland Stream
9	1	1.0	7-24		Type 2

*NFS – No Fish Sampled, CT – Cutthroat trout (*O. clarkii*).