



Ministry of Forests and Range Sunshine Coast Forest District

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Eakins Point (Gambier Island) Woodlot Evaluation

Sunshine Coast Forest District

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Introduction:

Chartwell Consultants Ltd. was contracted by the Ministry of Forests and Range - Sunshine Coast Forest District to conduct a ground survey of areas in the northeast portion of Gambier Island with the intent of assessing the viability of establishing a Woodlot Licence near Eakins Point. The primary objective of this project was to assess the timber types, as shown on the forest cover maps, for their accuracy. Additionally, the area was to be evaluated for any constraints to forest development and potential resource conflicts were to be identified. Chartwell Consultants Ltd. was to provide recommendations regarding the viability of the area as a Woodlot Licence, identifying logical boundaries and complete the Annual Allowable Cut calculation using Woodlot for Windows. Gambier Creek was also to be assessed for possible bridge locations with the purpose of providing access from the woodlot to the proposed barge loading point at Douglas Bay.

Methodology:

Timber types were checked by establishing plots in each polygon. In polygons between 5 and 10 hectares in size, one plot was established, while two plots were established in polygons exceeding 10 hectares. The plot locations were predetermined randomly and mapped. These plots were then located and established in the field using global positioning navigation. Where the predetermined plot locations resulted in what was considered by the field crew to be unrepresentative sampling of the timber type, the plot location was moved to better reflect the attributes of the timber type. Tree species, diameter, age and height were collected at each plot location as well as information pertinent to potential forest development. This included noting issues regarding the accessibility of the area, potential harvest system, the presence of forest health agents, etc.

To assess the existing roads and potential bridge crossings on Gambier Creek, aerial photographs were studied and 10 field days (in total) were spent between the two potential woodlots in the field exploring the existing and proposed access routes as depicted on the Gambier Woodlot Evaluation Map prepared by C.L. Anderson in 2006.

Assessments:

Access

There are two main existing access routes to the proposed northern woodlot; an approach from the east through private land on Douglas Bay (Lot 2979) and an approach from the north through private land, the site of the Latona recreational resort, east of Eakins Point. Both routes are accessible, at present, only by foot.

The road/trail from Douglas Bay, that follows Gambier Creek, is best accessed approximately 700 metres from Douglas Bay via the existing roads on the private land. The road has deteriorated due to extensive water erosion on the steeper sections and has a 155 metre pitch of 25% grade that cannot be avoided or reduced. The location is confined by the steep terrain for much of its length with little opportunity for timber development outside of the creek draw. Terrain slopes ease somewhat as the road proceeds westward toward Gambier Lake and opportunities for branch roads and timber development increases.

The route from the north was constructed at a later date than the approach from Douglas Bay and the portion within the private land has been used recently to harvest timber. The numerous steep pitches of this road, through the private land, have suffered water erosion. Where the grade lessens, south of the private land, the road's surface generally remains intact (gravel/cobble). This route could be cleared to allow accessibility for all terrain vehicles. A portion of this road, situated above approximately 320 metres in elevation (polygon 206), would become the primary access route for the central and southern areas of the proposed woodlot. It is proposed that this portion of the existing road be linked to a route originating at Douglas Bay via a bridge on Gambier Creek. This proposal is dependent on permission to construct new road as well as upgrade existing road through the private land on Douglas Bay. It is of concern that the logical route through the private land transects one particular prime view lot. West of the private land, the proposed route can be joined to and follow an existing, viable road traverse that extends westward across the north face of the proposed woodlot. Linking this traverse to the existing road would involve switching back west of the existing road and approximately 400 metres of 15-20% grade. Portions of the existing traverse, in proximity to the existing road, have been located on segments of skid trails.

North of Gambier Lake, the terrain affords opportunities for spur roads from the existing road and timber development to the east and west. South of the lake, the steepness of the terrain gradually increases and apart from immediately adjacent to the lake and from the end of the road, few spur road opportunities exist. Approximately 250 metres back from the end of the road, a slope failure has resulted in a narrowing of the road as it rounds a vertical rock face. Reconstruction will require a rock cut of approximately 30 metres in length, 10 metres high and 2 metres in width.

It is highly unlikely that any connecting route to the southern woodlot could commence from this road, south of Gambier Lake, as proposed on the C.L.Anderson map (2006). This is due to the steep, rocky terrain below the road. Rocky terrain also prevents the existing road from being extended much further south.

Archaeological Findings:

No items of archaeological significance were noted during the field assessment of the proposed Douglas Bay woodlot area. However, the relative close proximity to several First Nation bands (Squamish, Sechelt etc.) increases the archaeological potential for this area. Also, the nature of the terrain, the presence of water bodies and old growth timber types make it highly likely that these areas have had some First Nation traditional use. A reconnaissance level AIA (Archaeological Impact Assessment) is recommended.

Forest Health:

No major forest health concerns were noted during the field inspection of the proposed Douglas Bay woodlot area. Mistletoe is common to Western hemlock and small isolated patches of root rot are present in the Douglas fir / hemlock stands. Knockdown of hemlock regeneration in areas of increased mistletoe activity and the planting of resistant species such as Western Red cedar in root rot patch areas should assist in mitigating detrimental forest health agents.

There is a substantial amount of windthrow (>5ha.) approximately located in polygons 256/257. It appears to be the result of a single windthrow event.

Terrain:

The terrain in both of the proposed woodlot areas is varied and broken. Rock bluffs are a dominant feature in much of the area, as are rocky knolls and outcrops. Rock bluffs prevent conventional development of the southernmost areas of both proposed woodlot areas. Areas previously harvested by means of access routes with extreme grades or located up streams may no longer be accessible without major rock cuts. Timber development below the proposed access route across the northern face of the northern woodlot will be hindered by the stepped (bench/bluff) nature of the terrain.

Terrain stability field assessments (TSFA's) will need to be conducted in those areas with sustained slopes >65%. This is of particular concern in those areas that feed into the community watershed as water quality may be impacted.

Riparian Classification:

Gambier Lake and Gambier Creek as well as its tributaries are situated in a community watershed. In accordance with Woodlot License Planning and Practices Regulation (WLPPR Section 36(2)) regarding streams in community watersheds, all streams in the Gambier Watershed will default to a S2, S3 or S4 classification (based on their width). Gambier Lake is classified as L1 and fish bearing (MOE – FISS). There is an effective fish barrier (waterfall) to salt water fish located on Gambier Creek approximately 50 metres from Douglas Bay. Gambier Creek is classified as an S2 for most of its length. Maintaining the appropriate reserves on all creeks may prove problematic where existing roads are already located within reserves and constrained by the terrain. There are several streams located along the southern portion of the proposed Eakins Point woodlot that are inside of the community watershed and will default to either a S4 or S3 classification. All other streams that are outside of the community watershed and have slopes greater than 25% have been defaulted by gradient to be classified as S5's or S6's.

Any water intake locations should be firmly established and any harvest plans should incorporate appropriate measures to safeguard the purity of the water supply. It is anticipated that this will have an adverse effect on the timber supply area. Road construction through or in proximity to these creeks will be a concern.

Other Assessments:

A watershed assessment (if not done already) is recommended on the community watershed located inside both of the proposed woodlots. The community watershed occurs over a significant proportion of the total harvestable land base of these woodlots (Eakins Point – 321.6 ha). A management plan detailing the proposed maximum harvestable area (at any given time) and any other watershed concerns should be produced in order to properly manage this community watershed.

Further research detailing the status of the existing recreation trails located inside both of the proposed woodlots on Gambier Island should be conducted in order to establish a management strategy for multiple resource use. These trails pose concerns for timber management, particularly regarding proposed road locations and major access routes. In some instances, the recreation trails (previously used as haul roads) have been proposed to be reactivated as access routes for both of the proposed woodlots.

Visual Impact Assessments (VIA) will be needed, particularly on the South facing aspect (towards Vancouver) and the North facing aspects (towards private land and Howe Sound). Visual resource management is not anticipated to impact harvest volume as woodlot management generally results in small, non-obtrusive harvest patch size.

There are portions of the woodlot that have been slated as draft Old Growth Management Area (OGMA). The approved landscape unit plan should be consulted prior to designation of fixed woodlot boundaries in case the draft OGMA areas are set to become legally designated before the woodlot license plan is approved (See attached 1:10000 map for locations).

Annual Allowable Cut (AAC) Calculations & Assumptions:

Two separate AAC's were determined for the Eakins Point woodlot using the Woodlot for Windows program. The first run was designed to use the provided Ministry of Forests and Range data. The calculated AAC for this scenario was **3,078 m³/year**.

The second run used the information that was compiled in the field by Chartwell Consultants Ltd. Updated crown closures, tree heights and ages were inserted into each polygon in order to update site indexes and to provide improved volume estimates. The calculated AAC for this scenario was **3,411 m³/year**.

* It should be noted that the site indexes were marginally improved for the field-based, second scenario. It is anticipated that the AAC can be greatly increased (500-1000m³/year) by adjusting the Volume Adjustment Factor (VAF) by polygon in Woodlot for Windows to reflect those harvestable volumes found in the field.

Several assumptions, netdowns and constraints were added to calculate the AAC for the Douglas Bay woodlot. To begin, it was assumed that only harvestable polygons were to be added to the AAC analysis. The polygons found to consist mainly of rock amounted to an area of approximately 2.3 ha and the polygons representing Gambier Lake equaled 14.0 ha of the Eakins Point woodlot and were, therefore, excluded from the AAC analysis.

All assumptions pertaining to Appendix A of the contract specifications (# TE DSC 08 001) have been followed for both the VDYP and TIPSYP analysis. The following assumptions have been modified to better model the AAC forecast for the Eakins Point woodlot.

As specifically provided by the Ministry of Forests and Range, 8% of the total area was netdown for Wildlife Tree Patch (WTP) inclusion and a further 5% of the area was netdown for road construction.

After consultation with the Ministry of Forests and Range authority, another 3% of the woodlot area was netdown for community watershed purposes. This is due to the streams in this area being defaulted to fish bearing status (increasing non-harvestable riparian reserve zone area) and to the inability of the licensee to harvest large areas in the watershed at any given time (generally constrained to having only ~20% of watershed area being harvested at any given time). Overall, 16% of the total area was netdown for the Eakins Point woodlot.

Several harvest parameters were set in order to facilitate the AAC calculation, particularly in the managed TIPSYP stands. The planning horizon was set to 250 years, the minimum harvest age was set at 50 years, the minimum harvestable volume was set to 350m³/ha and the minimum utilization rate was set at 12.5cm (rounded to 13cm in Woodlot for Windows).

A small 5.1 ha opening located in the north-west portion of the proposed woodlot has been previously harvested (2006). This was not reported on the original timber type maps. Therefore, a modification to those polygons affected by this harvest has been done to represent this harvested area in Woodlot for Windows. Two new polygons have been created (204A and 646A) to account for the 5.1 ha area and an age of 1 year has been assigned (the harvest area had been planted) to account for future managed stands. The areas of polygons 204 and 646 have been adjusted to compensate for this.

A detailed analysis on a polygon-by-polygon basis has been included at the end of this report.

Gambier Creek Bridge Locations:

Development of the northern woodlot is dependent on access through the southern woodlot to the proposed barge loadout on Douglas Bay via a bridge on Gambier Creek. Three bridge locations were considered, the most viable of which is situated at the lowest elevation of the three sites Site #1). The other two sites (Site #2 and Site #3), located above the steep pitch (25%) on the trail north of Gambier Creek and were considered as a potential means of providing access to the western portion of the southern woodlot. Site #3 was considered to be the better of these two options.

Site 1

This is the site of an old skid trail crossing with connectivity to the existing road/trail north of Gambier Creek and a trail heading upstream on the south side. The trail heading upstream climbs out of the creek but quickly reaches excessive grades and is unusable. West of the proposed bridge site an old trail branches from the main trail in a steep switchback and connects to a more recent skid trail that runs northward to connect with built road in the private lot. This may be the only option for accessing much of the northern woodlot.

It is estimated that a 12 metre bridge will be required. On the south side of the creek, the proposed route proceeds northeast and requires approximately 80 metres of both partial and full bench cuts through a mixture of fractured and solid rock at a 10% grade. Here it is expected that 100% of the material will have to be endhailed due to proximity to the creek. Once out of the creek, the road connects to an old skid trail branching from the west fork of the existing road/trail in the southern woodlot.

Site 2

This site has a rock outcrop where the creek bends and narrows, affording a solid approach from the north side. Rip-rap would be required to armor the approach in the bend of the creek. The south side is approximately 2 metres lower in elevation requiring construction of a substantial abutment. A 12 metre bridge is required. This option offers no connectivity at acceptable adverse grades to a route from Douglas Bay but would provide good access to the western portion of the southern woodlot. An approach to this bridge from the west would be difficult due to the angle at which it would be constructed (approach from the northeast).

Site 3

This site has a solid approach from the north but would require approximately 110 metres of ballast and additional culverts on the south side. A 12 metre bridge would be required. This bridge location will afford accessibility to a route from Douglas Bay. It would also provide a means of avoiding hauling timber down a sustained 25% pitch on the access route from Douglas Bay.

Recommendations:

The proposed Eakins point woodlot, on the whole, should be a viable woodlot license. This hinges on the fact that access can be gained through either of the private land entry points previously described in this report. The estimated harvestable volume of $\sim 3500 \text{ m}^3/\text{year}$ can be adjusted to improve the yearly harvestable volume given the field data that was collected or through a more detailed woodlot valuation (e.g. blanket cruising).

One further recommendation is to look at removing a portion of the south-eastern part of the proposed woodlot due to: difficult road access; steep, rocky terrain; draft OGMA areas, and poorer timber quality. It is highly likely that this area will need to be heli-harvested and may prove to be a detractor in trying to sell the woodlot licence in the future.

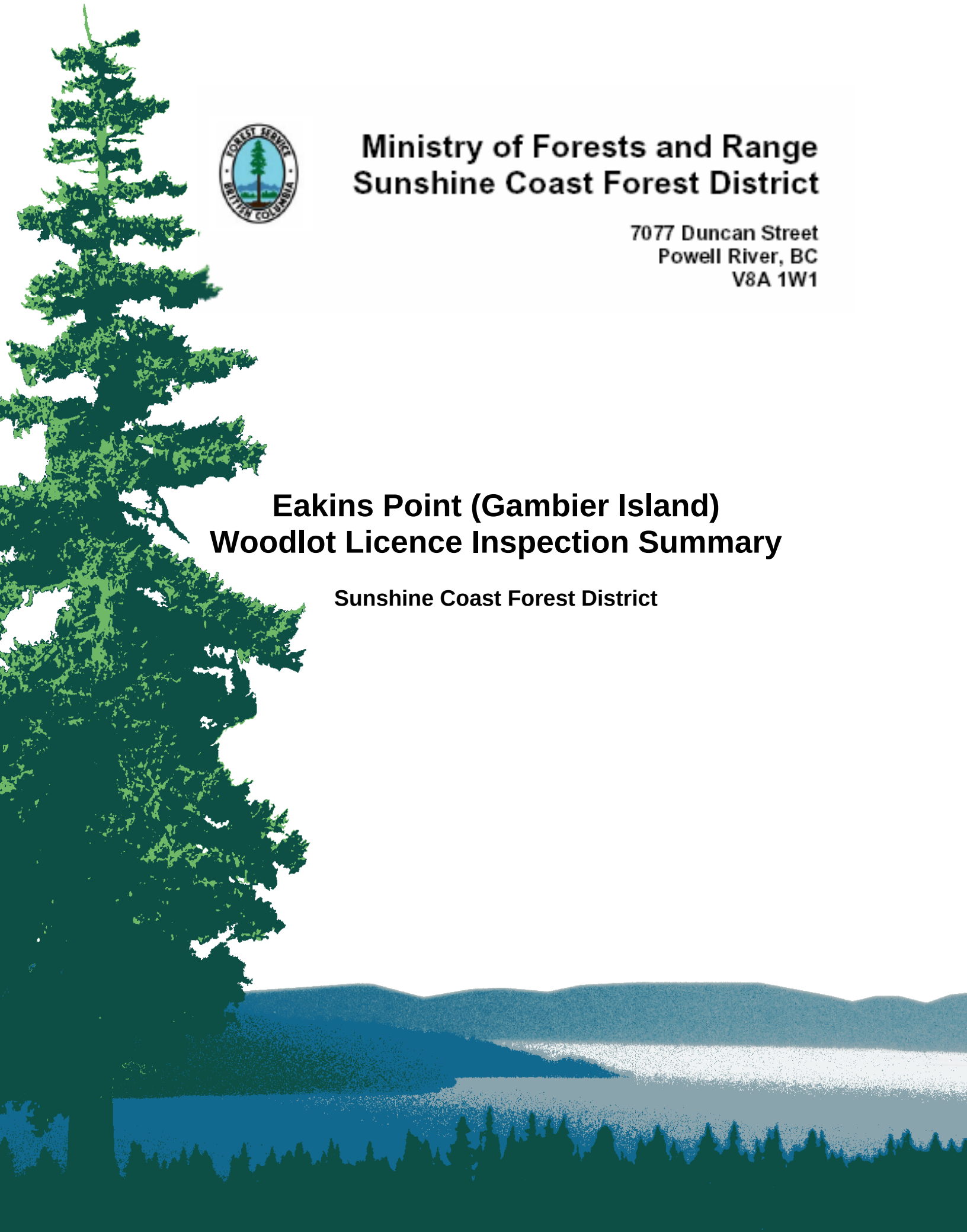


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Eakins Point (Gambier Island) Woodlot Licence Inspection Summary

Sunshine Coast Forest District



Woodlot Licence Inspection Summary Report

Woodlot Licence Area
Geographic Location: Gambier Island – Eakins Point

Polygon Information							Logging Method			Slope		Terrain				Under Brush				Forest Health	Comments
P #	Species Composition by %	Ht	Age	CC	Merch area	Vol. m ³ /ha	Ground	O/H	Other	Range	Avg	Even	Rolling	Gulled	Broken	L	M	H	VH	Agent Code	
3	Fd90 Cw10	35	100	40	1.4	600			X	10 - 100	65				X	X				Conk in Fd	Lots of rock and bluffs, talus/dry slopes – hard planting, Heli logging would be only option due to difficult access and steep slopes
7	Fd70 Cw20 Hw10	35	100	50	1.7	700			X	10 – 100	60				X	X					Lots of rock / broken / bluffy ground, decent timber volume and quality in seams between rock bluffs, Heli would be the only option
9	Fd95 Hw05	27	100 / 160	30	4.2	350			X	10 – 100	70				X	X					Extremely steep / rocky / bluffy, Heli is the only option
643	Fd45Hw25Hm10Cw10Cy10	30	100 / 160	45	5.0	500			X	20 - 100	60				X	X					Very rocky and steep, with some decent wood through seams. This polygon is really all over the place for timber types. Poor quality at high elevations. Heli.
671	Hw60 Fd40	23	75	60	2.1	300			X	10 - 80	40				X	X					Large open rock bluffs with majority of wood in seams. Small Hw+Fd with scattered Fd vets. Ground based could be possible if made accessible, but unlikely. Wood isn’t good enough for Heli.
10	Fd75 Hw25	30	100 / 250+	60	4.0	700			X	10 – 120	70				X	X					Very rocky and steep. Extremely difficult logging terrain. Younger (100yrs) stand with scattered Fd vets. Fd vets are fire scarred.
24	Fd60 Hw40	35	80 / 250+	50	2.5	600			X	10 - 120	60				X	X					Very broken terrain. Fd vets with Hw understory. Fd vets are fire scarred. Could be cable logged if accessible, but heli is most likely option.
16	Hw65 Fd30 Cw05	27	60-80	80	16.0	450	X	X		0 - 60	25		X			X				Minor mistletoe	Scattered Fd (and minor Cw) vets of decent quality. Small Hw+Fd understory. Good hoechuck ground on lower slopes and good cable on steeper slopes.
14	Hw45 Fd45 Cw10	34	60-70	80	10.0	550	X	X		5 – 90	50	X				X					Some large talus at lower slopes. Easy skidding on lower/flatter slopes and decent cable ground for steeper slopes.
17	Hw50 Fd40 Cw10	27	60	85	6.3	500	X	X		10 – 80	50	X				X				Minor mistletoe	Would make for a decent conventional block if made accessible. Old skid trail through polygon. Cw vets are poor quality.
668	Hw60 Cw20 Ba10 Cy10	28	100	40	3.0	300			X	30 – 90	60				X	X				Heavy mistletoe	Rocky and steep. Terrible wood quality. Difficult access. Heli only option, but not worth logging at all.
667	Hw50 Fd30 Cy20	25	100	30	1.0	300		X		30 – 70	50				X	X					Lots of open rock benches. Small/poor quality timber. Cable only if accessible, which is unlikely.
669	Hw60 Fd30 Cy10	23	100	30	2.2	250			X	40 – 120	70				X	X					Rocky and steep. Small timber and difficult access. Not a viable block.

228	Hw70 Fd20 Cw10	27	50-70	60	12.3	350		X		20 – 120	70				X	X				Minor mistletoe	Some large rock bluffs and open rocky sections on upper slopes. Small poor quality Hw. Few Fd vets. Could be cable if made accessible.
227	Hw50 Fd40 Cw10	25	70-80	80	4.5	500		X		0 – 60	40		X			X					Decent cable option if roaded. Very few Cw vets that are burnt and poor quality.
229	Cw40 Fd30 Hw30	35	75 / 250+	70	4.0	500	X			0 – 100	40		X			X					Mainly ground based if roaded. Mostly Hw understory with Fd+Cw vets scattered. Vets are fire scarred. No stumps, therefore not logged, just burnt.
1033/663	Hw80 Fd20	35	80	80	5.0	500		X		20 – 80	50		X			X				Minor mistletoe	Some exposed rock / bluffs. Timber quality is poor. Cable is a possibility assuming road access.
207	Fd50 Hw30 Dr20	27	60	30	2.8	500	X			10 – 40	25		X		X	X					Some open rocky areas. Fd is limby and Hw is small. Possible ground based.
249	Fd55 Hw35 Dr05 Cw05	33	80	60	40.0	800	X	X		0 – 50	25	X	X			X				Minor mistletoe and root rot	Very few rock outcroppings. Minor blowdown. Mostly a ground based block with some steep ground for cable (>10%). Good block potential.
209	Hw50 Fd40 Pl10	30	80	40	3.4	550		X		10 - 100	60				X	X					Large rock outcrop at eastern edge of type. Very rocky and steep in parts. Small piece size. Pl is isolated a peaks of rock knobs.
210	Hw60 Dr40	30	70	15	1.4	300	X			0 – 30	15	X				X				Mistletoe	Several skid trails running though polygon, therefore lots of Dr. Use of old skid trail = ground based.
203	Hw70 Fd30	30	80	80	2.0	500	X	X		10 – 120	60				X	X					Steep and rocky for the most part. If top of hill is made accessible there is some potential for ground based and cable logging. Small Hw and poor quality Fd vets doesn't make for good block potential.
651	Dr60 Hw40	30	80	50	1.6	300	X			15 – 60	30	X				X					Old skid trails everywhere, therefore lots of Dr. Some seams of Hw between skid trails, poor quality.
650	Hw55 Fd35 Cw10	32	90	70	3.6	650		X		10 – 70	40				X	X				Minor mistletoe	Some exposed rock. Few scattered vets. Mostly cable if accessible.
646	Hw60 Fd30 Cw10	40	100	60	16.0	800		X	X	10 – 120	50				X	X				Minor mistletoe	There is a logged heli block @ plot 646-1. It has been planted (visible Cw cones). Fd vets are left behind and a retention patch. Adjacent engineered block, found old cruise plots. Lots of Hw. Nice Fd. Good block potential. Some cable and some heli, terrain dependant
204	Fd45 Cw35 Hw20	37	110	50	12.2	750		X	X	30 – 120	60				X	X					Extremely steep, rocky and bluffy in sections. Some gullies. Nice quality Fd and Cw. Expect some breakage while falling. Visual polygon. Good block potential. Some cable and some heli, terrain dependant
211	Hw50 Fd40 Cw10	27	100	60	4.2	400		X		10 – 100	60				X	X				Mistletoe	Lots of rock bluffs. A steep old skid trail runs through polygon. Older type below skid trail – more like plot 650-1 and with more Cw.
1032/662	Hw90 Ba10	25	80	30	4.0	250	X			5 – 60	20	X					X			Minor mistletoe	Very small piece size. Easy ground based logging.
660	Hw50 Fd20 Cw20 Ba10	35	100	80	5.3	700	X			0 – 30	15			X			X			Mistletoe	Potential fish creeks running through polygon. Fd are nice. Some Cw vets with decent volume but not great quality.

1030	Hw50 Fd20 Cw20 Ba10	35	100	80	6.4	700	X			0 – 30	15			X			X			Mistletoe	Potential fish creeks running through polygon. Fd are nice. Some Cw vets with decent volume but not great quality.
1011/1029	Hw90 Ba10	25	80	30	3.5	200	X			0 – 30	10	X					X			Minor mistletoe	Small piece size. Good ground based potential. Potential fish creek running through polygon.
1010	Hw85 Ba15	30	60-70	80	4.5	450	X			5 – 40	20		X			X				Significant mistletoe	Large Cw stumps. A few small creeks running through. Easy hoechuck ground.
652	Hw60 Ba20 Cw15 Fd05	28	50-100	25	4.2	500	X			0 – 100	30		X				X			Significant mistletoe	Some broken rocky ground. Ages all over the place. Cherry picked good wood, brought up old regen. Mostly ground based.
208	Fd45 Hw45 Cw10	35	80-100	70	16.0	750	X	X		10 – 60	45		X			X				Minor mistletoe	Good ground based logging potential with some cable needed for some steeper terrain.
1027	Hw70 Ba10 Fd10 Cw10	27	100	80	7.0	650	X			10 – 60	30		X			X				Mistletoe	Small wetland just south of plot location. Good hoechuck potential.
1028	Hw60 Fd40	37	60-70	90	10.4	900	X			10 – 50	20		X			X				Minor root rot patch with blowdown	Minor rock outcrops throughout. Nice gang Fd. Good hoechuck ground. Nice block potential.
242	Hw60 Fd30 Cw10	26	80	40	3.7	350	X			5 – 40	20		X			X				Mistletoe and minor conk in Hw	Some rock outcrops. Scattered Fd+Cw vets. Ugly second growth Hw.
243	Fd50 Hw50	31	60	60	4.0	750	X			10 – 100	25				X	X					Broken / open rocky bluffs. Flat seams between rock will be good for ground based. Decent Fd gang for hoechuck.
197	Fd 70 Hw15 Cw 15	35	100150	60		900	X	X		0-60	50	X			X	X				Mistletoe, root rot	NW half of the polgon is immature with more ground based area and a higher Hw %. SE half is a mature stand that is steeper, broken,with more rock. There was significant amount of blowdown observed. The harvest area may be reduced for visual concerns, adjacency to private land. Nice sawlog and gang fir, maybe some peeler logs.
198	Fd 60 Hw 30 Cw 10	40	100	60		850		X		40-60	50	X				X				Mistletoe, root rot	Good block location,species composition,timber quality. Easy road access and yarding. Minor windthrow noted and some rocky areas. The harvest area may be reduced due to visual concerns and adjacency to private land. Nice Sawlog and gang fir.
195	Fd 50 Cw 30 Hw 20	20	90	80	5.15	450	X	X		0-70	40	X		X	X	X				Root rot	The polygon is mostly steep with shallow soils, rocky areas. Immature stand with fire scarred Cw Fd vets, some windthrow, mainly smaller dense timber. The harvest area may be reduced due visual concerns.
193	Hw 60 Cw 30 Fd 10	35	90-150	60	20.5	900	X	X		0-60	35	X			X		X			Mistletoe, root rot	SE finger is a mature stand ,Fd50 Cw40 Hw10 800-1200 m3/ha, mostly hoechuck. The remaining portion is Hw Cw. Significant blowdown throughout the polygon. The harvest area may be reduced due to visual concerns and stream locations.

194	Cw 60 Fd 30 Hw 10	35	90-100	70	12.88	900	X	X		0-80	40	X			X	X				Mistletoe, root rot	Good species composition and volume. Mostly broken ground, steep, gullied streams , expensive road, visual constraints, adjacency to private land and ocean front will limit area for harvest. Considerable windthrow noted.
259	Fd 60 Cw 20 Hw 20	30	100	60	2.9	550		X		20-80	60				X	X				Mistletoe, root rot	Steep broken ground with rock outcrops. Lower volumes , visual constraints, adjacency to private land and ocean front will make for a negligible amount of harvest area.
239	Hw 60 Fd 40	35	80	70	22.97	600	X	X		0-60	30		X		X	X				Mistletoe, root rot	Steep eastern portion of the type has low volumes 450 m3/ha Fd90 Hw10, salaal indicates poor site, and visual concerns (can see Horsehoe Bay).The majority of the type is ground based with nice gang fir. Harvest area may be reduced due to S3 stream location and Gambier lake.
247	Fd 90 Hw 10	25	70	80	7.3	550	X	X		0-80	50	X				X				Mistletoe, root rot	Steep rocky terrain, with bluffs and benches, salaal indicates poorer site. Three S4 streams ,poor road options and crossings, with tough yarding will limit the harvest area within the polygon. Decent gang fir.
238	Fd 60 Hw 40	20	60	70	0	300		X		40-70	55				X	X				Mistletoe, root rot	Low volumes, steep ,rocky, bluffs, poor site indicators(salaal), not a suitable block location.
245	Fd 80 Hw 20	35	100	80	9.4	900	X	X		0-70	40	X			X	X				Mistletoe, root rot	Approximately 75% of the type is grapple yarding. Broken ground with some bluffs and two S4 streams and one S3 make for fewer road options and tough yarding. visual constraints and watershed issues may limit harvest area. Decent block, good volumes, nice sawlog and gang fir.
236	Fd 90 Hw 10	35	100	70	5.0	650	X	X		40-70	50				X	X				Mistletoe, root rot	Steep, rocky, with bluffs and rock outcrops.These factors with an S3 and S4 stream limit road options, yarding and harvest area. Some windthrow and a hiking trail noted. Decent sawlog and gang fir.
237	Cw 50 Hw 40 Fd 10	20	80	30	0	300	X			0-20	5	X				X				Mistletoe	Low volumes, swampy / flood plain. Not a suitable block location.
246	Fd 90 Hw 10	35	100	80	9.4	700	X	X		0-70	40	X			X	X				Root rot	Southern half of the polygon is ground based with higher volumes and Hw component, but two S3 streams will limit the harvest area. Northern half of the type is Fd(Hw) grapple yarding. Two S3 streams will decrease the harvest area. Decent sawlog and gang fir.
269	Hw 50 Dr 50 (Cw Mb)	30	100	50	21.9	450	X	X		0-70	10	X		X		X				Mistletoe	Opportunity for Lower volume, easy access, ground based wood. The harvest area will be reduced by a gullied S2 creek and adjacency to private land.
205	Hw 40 Fd 30 Cw 30	35	110-130	70	32.8	800	X	X		0-60	30	X			X	X				Mistletoe, root rot	Approximately 20% of the area is ground based. The remainder of the type is steeper with rocky sections,and some bluffs with benches. This may limit road options and yarding. Some windthrow noted, and visual constraints. Decent species composition and timber quality. Two S4 streams runs through the type.

206	Fd 50 Hw 40 Cw 10	35	100150	70	9.2	800	X	X	X	0-100	50	X			X	X				Mistletoe, root rot	The western half of the polygon is an immature stand with ground based and conventional logging systems. The eastern half of the type is a mature stand steep and with some outcrops of rock and lots of bluffs. Visual constraints. Expensive limited road options , one gully crossing , may have to go heli. Excellent species composition Fd40 Cw30 Hw30.
255	Fd 60 Hw 30 Cw 10	25	130	80	8.0	500	X	X		130	70	X			X	X				Mistletoe, root rot	Mature stand, steep, some rock , no windthrow. Some visual concern. Southern half of the polygon has shallow soils higher cedar component. Decent fir and cedar .
256	Fd 50 Cw30 Hw 20	30	150-180	60	32.4	600	X	X		20-80	50				X	X		X		Root rot	The northern lobe of the polygon is Cw60 Fd 30 Hw 10 with a +/-3 ha. patch of windthrow and two streams with lower volumes due to windthrow. The Eastern lobe is Fd 90 with Cw Hw , steep and rocky with bluffs. SW lobe is Fd50 Cw30 Hw20 rocky, broken ground, greater % of ground based area. Mature stand,some fire scarring, good species composton, nice sawlog and gang fir.
257	Fd 50 Hw30 Cw20	30	130	70	5.7	700	X	X		20-90	45				X	X				Mistletoe, root rot	Mature stand, steep, rocky with some bluffs as well as visual concerns that will decrease harvest areas. Good species composition, nice sawlog and gang fir.
253	Fd(hw)	30	150	60	4.7	550		X		60-100+	60				X	X				Root rot	Mature stand. Nice sawlog gang fir. Possible to yard if road works.Visual concerns.
252	Hw 60 Fd 40 (Cw)	30	90	70	8.8	500	X	X		0-70	50				X	X				Mistletoe, root rot	Immature stand, steep, some rock outcrops, and bluffs, low visual impact. Minor winthrow observed. Some tough road building, easy yarding. Decent block location, and timber quality
268	Fd 60 Hw 30 Cw 10	30	90	70	3.2	500	X	X		0-70	20	X			X		X			Mistletoe, root rot	Some rock and windthrow. Merch area lost due to existing road/RW through the polygon and bluffs. Some easy lower volume ground based wood.Mediocre gang fir, hemlock.
267	Fd 40 Hw 40 Cw 20	30	100	70	1.37	400	X	X		0-80	40	X			X	X				Mistletoe, root rot	Very steep sections with rock outcrops and some windthrow. Adjacent to an existing cutblock and private land. Some easy access ground based wood.
254	Fd 40 Hw 30 Cw 30(Pl Pw)	30	150	60	5.7	550	X	X		0-60	20	X			X	X				Mistletoe, root rot	Some merch area lost to rock outcrops. Some areas contain shallow soils. Low visual impact and minor instances of windthrow. Decent block if the road works, approximately 80% ground based. Nice fir some fire scarring, decent cedar.
248	Fd 70 Hw 30	30	80	70	14.8	700	X	X		0-50	30	X			X	X				Mistletoe, root rot	Some merch area lost to rock outcrops. Western half of type is mainly ground based, easy road building, higher volumes, sawlog and gang fir.Good block location. Middle of the type has some shallow soils, rock outcrops, and lower volumes. Easten prtion is grapple yarding, lower volumes. Minor windthrow throught the type.
277	Fd 70 Hw 30	40	80	80	4.8	900	X	X		0-60	40	X			X	X				Mistletoe, root rot	No visual impact. Will lose some harvest area to S2 stream. Some rock outcrops, minor windthrow. Good block location, nice sawlog and gang fir.

276	Fd 50 Hw 40 Cw 10	35	80	80	6.4	800	X	X		0-60	40	X			X	X				Mistletoe, root rot	Some steep sections, windthrow,and bluffs.low visual impact. Will lose some harvest area to S2 stream. Good species composition,timber quality and volumes. Some issues with the road building to access ground based wood above the bluff and open bottom structure to cross S3 stream.
258	Cw 50 Hw 40 Fd 10	30	100	70	1.91	600	X	X		0-70	50				X	X				Mistletoe	Good species composition. May lose some harvest to buffer private land.
190	Fd 60 Hw 40	35	100	60	0.62	600		X		30-70	50				X	X				Mistletoe, root rot	Lots of windthrow, visual constraints, steep, rocky, adjacent to private land
192	Fd 60 Hw 40	35	100	70	2.06	600		X		0-70	30	X			X	X				Mistletoe, root rot	Some windthrow, visual constraints, steep sections, rocky, adjacent to private land. Nice sawlog and gang fir, easy road access and yarding.

Polygon Information: P# = Polygon Number, CC = Crown Closure, Vol m3/ha = Estimate based on plots and visual assessment
 Logging Method: Ground = Skidder, Hoe chucking, Horse, etc. O/H = Highlead, or Grapple Other = Helicopter, Skyline, etc.
 Under Brush: L = Low, M = Moderate, H = High, VH = Very High

