



## Cortes Island Wildfire Fuel Treatment

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Reef Point falling is the primary contractor for the Cortes Island Wildfire Treatment.. The Project team is made up of Tor Ellingsen and Kate McLean. Tor was born and raised on Cortes Island and has been an industry handfaller for 22 years. He is a certified falling supervisor and holds Danger tree Assessor certificates in Wildfire Safety and Parks modules. Kate McLean was born and raised on Quadra Island. She has 17 years wildfire experience and is currently contracting FireSmart assessment/guest speaker services to the Strathcona Regional District through the UBCM firesmart program. Kate also holds DTA wildfire module certification and has completed 2 years apprenticeship with BC Hydro as a Powerline technician. This background will be valuable in coordinating falling activities and communicating with BC Hydro for falling along treatment unit distribution Right-Of-Way.

We have walked the proposed Treatment unit and identified that the prescription of dragging all debris to bins at the recycling depot for chipping and removal by the SRD is extremely labour intensive. Especially with the terrain features and distance that the debris will need to be drug. Therefore, all debris will be removed via pile burning.

# Map of Treatment Area



# Fuel Management Prescription



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A. PROJECT IDENTIFICATION		
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<b>PROJECT ID AND UNIT ID:</b> Cortes Island FMPs "RECY" unit		<b>LAND OR TENURE HOLDER:</b> Cortes Forestry General Partnership ("CFGP") (K4G – Community Forest)
<b>LATITUDE/LONGITUDE:</b> <b>RECY</b> 50° 5'43.79"N, 124°54'47.39"W		<b>GEOGRAPHIC DESCRIPTION:</b> Located on the east side of Cortes Island approximately 2.4 km south of Squirrel Cove (and on the east side of Squirrel Cove Rd), the RECY (Recycling) treatment unit is a polygon that buffers the island community's recycling centre – identified as hazardous material infrastructure in the 2020 Cortes Island CWPP.
<b>HIGHER-LEVEL PLAN(s):</b> <ul style="list-style-type: none"> <li>• Community Forest (CF) Operating Plan (2014)</li> <li>• CFGP Community Forest K4G FSP (2019)</li> <li>• CFGP Five Year Plan (2018)</li> <li>• Vancouver Island Land Use Plan (2000)</li> <li>• Cortes Landscape Unit Plan (2012)</li> <li>• Strathcona Regional District Strategic plan 2020 - 2024</li> </ul>		<b>MAP REFERENCE NUMBER:</b>  92K.006
B. PROJECT DESCRIPTION		
<b>OBJECTIVE:</b>	<b>PUBLIC SAFETY</b> <input checked="" type="checkbox"/>	<b>RANGE IMPROVEMENT</b> <input type="checkbox"/>
	<b>ECOSYSTEM RESTORATION</b> <input checked="" type="checkbox"/>	<b>RECREATION</b> <input type="checkbox"/>
	<b>WILDLIFE HABITAT</b> <input checked="" type="checkbox"/>	<b>OTHER:</b> <i>protection of hazardous critical infrastructure</i>

	<p><b>DESCRIPTION:</b> This prescription addresses the area surrounding the Cortes Island recycling centre, as identified in the Cortes Island 2020 CWPP due to the strategic location for public protection of hazardous materials stored there that could ignite either from a wildfire, or ignite starting a wildfire. The secondary intent of this treatment is to provide the community an accessible and visible example of fuel reduction activities that they can then apply to their own properties (a demonstration project). The area under prescription is managed by the Province and the Cortes Forestry General Partnership (CFGP) for timber harvesting and conservation objectives.</p> <p>The objectives of this prescription are to:</p> <ul style="list-style-type: none"> <li>• Reduce the chances of a wildfire being propagated by the ignition of hazardous materials at the recycling centre by reducing surface, ladder, and crown fuels surrounding it;</li> <li>• Reduce the chances of a wildfire being started by the ignition of hazardous materials at the recycling centre by reducing surface, ladder, and crown fuels surrounding it;</li> <li>• Reduce overall wildfire behaviour threat and ignition potential in the TU;</li> <li>• Reduce the wildfire risk to public use of the recycling centre.</li> <li>• Create a demonstration of wildfire risk reduction activities residents can use on their own properties.</li> <li>• Create job opportunities for local contractors able to implement the works outlined in this prescription.</li> <li>• Minimize negative impacts to the stand, and, where possible, enhance the many values of the treated stand. Values include, but are not limited to wildlife habitat, water quality, forest health, air quality, and recreation.</li> </ul>
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<p><b>STRATEGIES:</b></p>	<p>The proposed treatments will modify stand structure to reduce potential surface and crown fire behaviour by:</p> <ul style="list-style-type: none"> <li>• Retaining co-dominant canopy trees to maintain a cool and moist understory microclimate;</li> <li>• Thinning from below: i.e., removing dead, suppressed and intermediate trees to reduce the risk of potential crown fire behaviour associated with high crown bulk density and fire laddering into crowns;</li> <li>• Reducing fine surface fuel loading to limit potential <b>head fire intensity</b> to a critical threshold of 2,000 kW/m - Rank 3 or less, reduce potential fire severity, and increase potential control;</li> <li>• Reduce fine surface fuel loading to limit <b>critical surface fire intensity</b> between 1,000 - 2,000 kW/m; and</li> <li>• Retaining wildlife habitat features (e.g. wildlife logs and wildlife trees);</li> <li>• Retaining live deciduous tree and shrub species with a high moisture content to reduce potential fire behaviour, maintain biodiversity and provide wildlife habitat.</li> </ul> <p><b>METHODS:</b> HTR= Hazard tree removal, TFB=Thin from below, PR = Pruning, SFR= Surface fuel removal.</p> <p><b>FIELD MARKING:</b> Ribboning on trees: external boundary edges marked by black/red candy-stripe ribbon, falling corners have been demarcated with two red/black candy stripes and one labeled white ribbon in between; stand plot centers have been flagged with a double yellow ribbon. Streams have been flagged with blue ribbon.</p>
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C. TREATMENT UNIT (TU) SUMMARY							
TU	NET AREA (ha)	GROSS AREA (ha)	LEAVE AREAS (ha)	NP (ha)	NAR (ha)	TREATMENT REGIME (i.e. PRU, THIN, PIL, BURN)	GENERAL DESCRIPTION
RECY	3.34	3.36	0.02	0.00	0.00	TFB, PR, SFR, HTR Manual Treatment	This TU is characterized by a mature (~120-140 yrs. old) Douglas-fir (Fd) leading stand with lesser components of western red cedar (Cw) and western hemlock (Hw) and a small component of lodgepole pine (Pl) and western white pine (Pw). Crown closure is variable (35-65%), more open on bedrock dominated expressions (dry, thin soils). The understory (poles and saplings) is dominated by dead stems and western hemlock. Surface fuel loading is generally low-moderate across all size classes (averaging 2.4 kg/m <sup>2</sup> ). The average density of dominant and co-dominant trees (>17.5cm DBH) is 570 sph, and across all diameter classes is 2,730 sph. Hemlock mistletoe is present across the stand, with some mature stems showing intense infections (large branch brooms and bole swelling).

D. SITE CHARACTERISTICS							
TU	CFFBPS FUEL TYPE	TIMBER TYPE (>17.5cm dbh)	BGC SUBZONE, VARIANT & SITE ASSOC.	ELEVATION RANGE (m)	SLOPE POSITION	SLOPE RANGE (%)	ASPECT
RECY	C-3/C-5	Fd40 Cw33 Hw13 Pl7 Pw3 Dead3	CWHxm1 03(01/02)	125-155m	Mid (upper/lower)	0-70	ALL variable
FUEL TYPE DETERMINATION		Fuel type was determined based on field inspection, field photos, and interpretation of empirical stand measurement data undertaken in March 2021.					

E. SOIL CHARACTERISTICS							
TU	SOIL TEXTURE	DUFF DEPTH (cm)	COARSE FRAGMENTS (%)	SOIL DISTURBANCE LIMIT (%)	SOIL HAZARD RATING		
					Compaction	Erosion	Displacement
RECY	LS	6	15%	5	Low	High	High

F. VALUES – FOREST AND RANGE PRACTICES ACT			
RIPARIAN & LAKESHORE AREAS - Forest Planning and Practices Regulation (FPPR) division 3, Government Action Regulation (GAR) section 6, Forest and Range Practices Act (FRPA) sections 180 and 181			
Is the proposed cutting, modification or removal of trees, or site preparation, in an area that contains streams, lakes or wetlands?	Yes	<b>No</b>	None were identified during field work.

RIPARIAN MANAGEMENT AREAS (RMAs) - FPPR sections 51 and 52					
STREAM, LAKE, WETLAND	CLASS	RRZ (m)	RMZ (m)	RMA (m)	SPECIFICATIONS FOR RIPARIAN OR LAKESHORE MANAGEMENT AREAS
None-classified wetland	-	-	-	-	To protect water quality, within the RMA or 40 m of all mapped and unmapped water courses (with or without water present), the following specifications apply: <ul style="list-style-type: none"> <li>No refuelling of any equipment (chainsaws, chippers, brush saws, pole saws, etc.);</li> <li>No burn piles or distribution of chips;</li> <li>No use of heavy machinery;</li> <li>Do not construct trails;</li> <li>Fall trees away from the stream.</li> </ul>
No streams identified					
TEMPERATURE SENSITIVE STREAMS - FPPR section 53, GAR section 15, FRPA sections 180 and 181					
Are there temperature sensitive streams or direct tributaries to temperature sensitive streams within or adjacent to the proposed treatment area?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.		

ROAD CONSTRUCTION IN RIPARIAN MANAGEMENT AREAS - FPPR section 50			
Is road construction proposed in riparian management areas within the treatment area or an associated road permit (RP)?	Yes	<b>No</b>	n/a
STREAM CROSSINGS - FPPR section 55			
Will stream crossings be constructed within the proposed treatment area or a road permit road providing access to the treatment area?	Yes	<b>No</b>	n/a
MAINTAINING STREAM BANK AND CHANNEL STABILITY ON S2, S3, S4, S5, and S6 STREAMS - FPPR section 52 (2)			
Is the proposed treatment in the RMZ of an S4, S5 or S6 stream that is directly tributary to an S1, S2 or S3 stream and the activity is likely to contribute significantly to the destabilization of the stream bank or the stream channel?	Yes	<b>No</b>	n/a
DOMESTIC WATER LICENCES (inside or outside of community watershed) - FPPR section 59			
Does the proposed treatment area contain water sources that are diverted for human consumption by a licensed waterworks?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.
LICENCED WATER WORKS (inside or outside of a community watershed) - FPPR section 60			
Does the proposed treatment include areas that are within 100 m of a licensed waterworks?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.

<b>FISHERIES SENSITIVE WATERSHED</b> - GAR section 14, FPPR section 8.1			
Are any activities proposed within a fisheries sensitive watershed?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.
<b>COMMUNITY WATERSHED</b> - GAR section 8, FPPR section 8.2, 61, 62 and 84			
Does the proposed treatment area include areas that are within a community watershed?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.
Will this project require road construction or deactivation within a community watershed?	Yes	<b>No</b>	<b>All TUs:</b> No work is planned within a community watershed.

<b>WATERSHED ASSESSMENT CONSIDERATIONS</b> - FRPA section 180 areas with "significant watershed sensitivity"				
Does the proposed treatment area include areas that have watershed assessment considerations?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.	
<b>SOIL DISTURBANCE AND PERMANENT ACCESS STRUCTURES</b> - FPPR sections 35 and 36				
Treatment Unit	Proposed Max. Allowable Soil Disturbance (%) (5% or 10%)	Proposed Max. Soil Disturbance for Roadside Work Areas (%)	Proposed Max. Permanent Access Structures (%)	Comments
RECY A-1	5%	25%	0	Hand work only.
Do the proposed Permanent Access Structures exceed 7% of the total area?	Yes	<b>No</b>	<b>All TUs:</b> No permanent access structures are proposed as part of this prescription.	
<b>LANDSLIDES AND TERRAIN STABILITY</b> - FPPR section 37				
Does the proposed treatment area include areas where terrain stability is a concern?	Yes	<b>No</b>	<b>All TUs:</b> There are no terrain stability areas of concern within the TU.	
<b>SUITABLE SECONDARY STRUCTURE</b> - FPPR section 43.1				
Does the proposed treatment area include a "targeted pine leading stand"?	Yes	<b>No</b>	<b>All TUs:</b> Section 43.1 and 43.2 of FPPR were reviewed and no portions of the proposed treatment area are designated as targeted pine leading stands.	
<b>UNGULATE WINTER RANGE</b> - GAR section 12, FRPA sections 180 and 181, FPPR section 69				
Does the proposed treatment area include areas within an Ungulate Winter Range?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.	
<b>WILDLIFE HABITAT AREA</b> - GAR section 10; FRPA sections 180 and 181, FPPR section 69				
Does the proposed treatment area include any wildlife habitat areas (WHA)?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.	
<b>OBJECTIVES SET BY GOVERNMENT FOR WILDLIFE</b> - FPPR section 7				
Does the proposed treatment area include areas to which objectives for wildlife under FPPR section 7 apply?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC and Conservation Data Centre spatial layers were reviewed on Feb. 25, 2021 and no species at risk occurrences exist.	

OBJECTIVES SET BY GOVERNMENT FOR BIODIVERSITY OBJECTIVES (Landscape Level) - FPPR section 9			
Does the proposed treatment area include areas to which objectives for landscape level biodiversity under FPPR section 9 apply?	<u>Yes</u>	No	<p><b>All TUs:</b> The TU lies within the CWHxm1 subzone.</p> <p>The CWHxm1 subzone is characterized as an ecosystem with infrequent stand-initiating events, or Natural Disturbance Type (NDT) 2. NDT2 ecosystems can be generalized as even-aged forest stands with extended post-fire regeneration periods. As a result, uneven-aged tendencies (i.e., patch dynamics) can occur when forested areas remain undisturbed for significant periods of time. Fires are often moderate in size (20 – 1000 ha), with unburned areas resulted from sheltering terrain features and high site moisture. Fires have historically resulted in a mosaic of mature forests across the landscape interspersed with younger forests. The mean return interval for fires and disturbances in the NDT2 has generally been 200 years. The fire regime in the CWHxm1 has been modified by human activities during the last century, which include forest harvesting and fire suppression. The proposed treatments will maintain existing even-aged stand characteristics by targeting understorey stems for removal and prioritizing the retention of co-dominant and dominant mature trees. This approach is consistent with the spatial and temporal patterns of natural disturbance in the CWHxm1 ecosystem.</p>
OBJECTIVES SET BY GOVERNMENT FOR BIODIVERSITY OBJECTIVES (Stand Level) - FPPR section 9.1			
Are considerations for maintaining stand structure (wildlife trees, wildlife tree reserves, etc.), coarse woody debris, and maintaining tree and vegetation species composition incorporated into this prescription?	<u>Yes</u>	No	<p><b>All TUs:</b> Prior to the commencement of treatment activities, a Wildlife Danger Tree Assessment must be completed. Wherever safe and practicable, trees with wildlife attributes such as internal decay, crevices, evidence of wildlife use, or a structure preferred by wildlife, will be retained. Retention of coarse woody debris is recommended, particularly logs &gt;22.5 cm in diameter, but must follow prescription specifications for fuel loading (see Section H: Surface Fuel Loading). This prescription also calls for the retention of all fire-resistant tree and shrub species (deciduous). Wherever possible, the prescription recommends the removal of suppressed or dead stems, and the retention of a variety of tree species to ensure biodiversity levels are maintained across the treatment areas. All decaying (Class III and above) logs and stumps should be left in place to avoid disturbing wildlife habitat.</p>
RECREATION FEATURES - FRPA section 56 and 149, FPPR section 70			
Does the proposed treatment area contain interpretive sites, recreation trails, recreation sites, recreation facilities that are considered to be of significant recreation value and are designated a resource feature?	Yes	<u>No</u>	<p><b>All TUs:</b> iMapBC layers were reviewed on Feb. 25, 2021 and the treatment area does not overlap with any provincially designated recreation features. However, the treatment area is adjacent to public use hiking (summer) and skiing (winter) trails.</p>
VISUAL QUALITY OBJECTIVES - GAR section 7, FRPA sections 180 and 181, FPPR section 9.2			
Is the proposed treatment within a scenic area?	<u>Yes</u>	No	<p><b>All TUs:</b> The TU partially overlaps two EVQO polygons: VLI #592 – Retention; and VLI #608 – Partial Retention). The prescription aims to retain ~450 sph (~80%) of L1 (dominant and co-dominant) trees which will retain the visual characteristics of the stand and meet the established visual quality objectives.</p>
ARCHAEOLOGICAL RESOURCES/CULTURAL HERITAGE RESOURCES - FPPR section 10			

<p>Are there any known archaeological sites or cultural heritage resources that are important to First Nations within the proposed area?</p>	<p>Yes</p>	<p><b>No</b></p>	<p><b>All TUs:</b> A shapefile of the proposed treatment areas was submitted to the MFLNRORD Archaeology Branch on Feb. 25, 2021, to assess any overlaps with archaeological sites or cultural heritage resources. A response was received on March 12, 2021, indicating that no known archaeological sites overlapped. Archaeological sites (both recorded and unrecorded) are protected under the <i>Heritage Conservation Act</i> and must not be altered or damaged without a permit from the Archaeology Branch.</p> <p><i>Fuel treatment operations have the potential to find and disturb currently unrecorded heritage sites, above and below ground. If archaeological materials or other heritage remains are uncovered during treatment, work in the area of the find must cease immediately, the location shall be secured, and the Archaeology Branch contacted for direction at 250-953-3334.</i></p>
<p><b>INVASIVE PLANTS - FRPA section 47 and FPPR section 17</b></p>			
<p>Is the introduction and spread of invasive plants likely as a result of the proposed treatment?</p>	<p>Yes</p>	<p><b>No</b></p>	<p>The Invasive Alien Plant Program (IAPP) did not identify occurrences of species within the treatment areas, however there are known invasive plant occurrences along public roads used to access the TU (Canada thistle, Oxeye daisy, and Sheep Sorrel). Best management practices should be followed (listed below). Invasive plant sightings should be reported through reportaweedsbc.ca or by calling 1-888-WEEDSBC.</p> <p><i>General best management practices to reduce the introduction and spread of invasive plants include:</i></p> <ul style="list-style-type: none"> <li>• <i>Any equipment used in fuel modification works must be clean of excess soil and plant material prior to transport to site.</i></li> <li>• <i>Minimize trips through identified invasive plant sites. If known invasive plant sites are traversed by foot crew or machinery, clean clothing, boots, and equipment thoroughly before transitioning within and between treatment units.</i></li> <li>• <i>Avoid driving through or parking on weed infestations.</i></li> <li>• <i>Areas of soil exposed as part of undertaking this treatment that are within 50 m of known invasive plant infestations may be considered for planting with native deciduous trees/shrubs. If required, a planting prescription should be developed by a Registered Professional Forester with consideration for site specific ecology and applicable species mix.</i></li> </ul>
<p><b>NATURAL RANGE BARRIERS - FRPA section 48, FPPR section 18</b></p>			
<p>Are there natural range barriers within the proposed treatment area that are likely to be removed or rendered ineffective?</p>	<p>Yes</p>	<p><b>No</b></p>	<p><b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.</p>
<p><b>LAND USE OBJECTIVES (Higher Level Plans and objectives set by Government under the Land Act)</b></p>			
<p>Are there land use objectives (higher level plans or objectives under the <i>Land Act</i>) that apply to the proposed treatment area or a Road Permit necessary to</p>	<p>Yes</p>	<p><b>No</b></p>	<p><b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.</p>

provide access to the treatment area?			
Do the proposed activities conflict with land use objectives (higher level plans or objectives under the <i>Land Act</i> )?	Yes	<b>No</b>	<b>All TUs:</b> iMapBC spatial layers were reviewed on Feb. 25, 2021 and no overlaps nor adjacencies exist.
<b>G. OTHER CONSIDERATIONS AND REQUIREMENTS</b>			
<b>CONSULTATION – FIRST NATIONS</b>			
<b>FIRST NATION</b>		<b>CONCERNS IDENTIFIED AND MEASURES TO ADDRESS</b>	
Stz'uminus First Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. A read receipt was received from the referral coordinator. <b>March 12, 2021:</b> A referral reminder email was sent.	
Penelakut Tribe		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. <b>March 12, 2021:</b> A referral reminder email was sent.	
Lyackson First Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. <b>March 12, 2021:</b> A referral reminder email was sent.	
Halalt First Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. <b>March 12, 2021:</b> A referral reminder email was sent.	
Lake Cowichan First Nation (Ts'uubaa-asatx Nation)		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. A read receipt was received from the referral coordinator. <b>March 12, 2021:</b> A referral reminder email was sent.	
Cowichan Tribes		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. <b>March 12, 2021:</b> A referral reminder email was sent.	
Nanwakolas Council		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. A read receipt was received from the referral coordinator. <b>March 12, 2021:</b> A referral reminder email was sent.	
Wei Wai Kum Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. Referral coordinator called back – their traditional territory doesn't fall on Cortes, but it would surround the coast, which is probably why we got them on the CAD. <i>Will not be reviewing</i>	
We Wai Kai Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. A read receipt was received from the referral coordinator. <b>March 12, 2021:</b> A referral reminder email was sent.	
Homalco First Nation (Xwemalhwu Nation)		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. <b>March 12, 2021:</b> A referral reminder email was sent.	
K'omoks First Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. A read receipt was received from the referral coordinator. <b>March 12, 2021:</b> A referral reminder email was sent.	
Tla'amin Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. A read receipt was received from the referral coordinator. <b>March 12, 2021:</b> A referral reminder email was sent. <b>March 12, 2021:</b> A response was received stating they will have information/comments delivered by the deadline on March 15, 2021. <b>March 15, 2021:</b> Information and comments received. They have been incorporated into this prescription. <i>Tla'amin Nation requests that the plans be referred again prior to treatment as a site assessment of the area may be required (although it was noted as being low risk for requiring one).</i>	

Klahoose First Nation		<b>Feb. 16, 2021:</b> A referral package was emailed including a KML of the TU. <b>March 12, 2021:</b> A referral reminder email was sent.	
First Nations consultation complete?	<b>Yes</b>	No	All First Nations associations were identified through the Consultative Areas Database. A 30-day review period will be in place from day of receivership. Any concerns identified by will be incorporated into the prescription with an amendment, and as required thereafter.
<b>CONSULTATION – GENERAL</b>			
<b>British Columbia Wildfire Service (BCWS) – Coastal Fire Centre</b>	<b>Tony Botica (Wildfire Prevention Officer – Coastal Fire Centre)</b> The prescription, an overview map, and a KML outlining the treatment unit was referred on March 8. A phone discussion took place on March 12 where Tony indicated support of the prescription and project and that a final review will happen once First Nation information sharing is completed.		
<b>CFGP (Community Forest)</b>	<b>Mark Lombard &amp; Ione Brown (Planning Forester)</b> The prescription and associated maps and spatial data were referred to Mark Lombard, Ione Brown, and the CFGP on March 8, 2021. A phone discussion took place March 12 where Mark Lombard stated the CFGP was in favor of the project and prescription, and that the cutting authorization can be applied for under the Community Forest's active cutting permit. A phone discussion took place with Ione Brown March 16 discussing stocking standards – an updated FSP Stocking Standard was received and requested to be referenced now onwards.		
<b>BC Hydro</b>	<b>Mike Ciccotelli (Manager, Distribution Vegetation Program &amp; Contracts Management)</b> Email discussions took place March 10-11 explaining the project and prescribed treatment. Mike identified the overhead power line transecting the treatment unit as a "primary energized wire". Prior to implementation work proceeding, BC Hydro (Mike) should be contacted and the implementation plans reviewed. Additionally, best management practices outlined below should be followed:  <i>The following BC Hydro overhead powerline standard best management practices apply: A Certified Utility Arborist (CUA) working with an Assurance of No Reclose Permit (ANRP) issued to them by the BC Hydro [Regional] Operations must perform all tree falling within two tree lengths (50 m) of overhead lines. It is also suggested that the CUA maintain a system of positive control at all times whereby the tree is climbed if no bucket access is available and the stem is pieced down to avoid any inadvertent contact with the primary wire.</i>		
<b>Adjacent Private Landowners</b>	n/a		
<b>EXISTING TENURE HOLDERS (Forest, Range, Guide Outfitters, Trappers)</b>	<b>Trapline (TR0115T964):</b> No contact data available via Sunshine Coast NRD  <b>Guide Outfitter – Certificate Holder: 1054991 BC Ltd / Guiding Certificate #100685:</b> No contact data available via Sunshine Coast NRD		
<b>PRIVATE PROPERTY</b>			
Does private property border the proposed treatment area?	Yes	<b>No</b>	<b>All TUs:</b> No private property borders.

<b>SMOKE MANAGEMENT</b>			
Does a smoke management plan exist for the proposed treatment area?	Yes	<b>No</b>	<b>All TUs:</b> Burning is not prescribed as a treatment/slash disposal option. However, if burning must occur, this prescription should be amended to reflect so and note that



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			<p>the Province of BC Open Burning Smoke Control Regulation applies. A smoke management plan may be required.</p> <p><i>Open burning for wildfire fuel reduction must be done in accordance with the provincial Open Burning Smoke Control Regulation. This prescription lies within a "High Smoke Sensitivity Zone", but allowances are made for open burning under a fuel reduction prescription. The operations contractor must be compliant in all aspects of this regulation, including notifications.</i></p>
<b>SAFETY</b>			
Have any specific safety concerns been identified in or adjacent to the proposed treatment area?	<u>Yes</u>	No	<p><b>All TUs:</b> Public access for recycling drop-off. Potential hazardous materials within the recycling centre drop-off area.</p> <p><i>See Section G. 'Access Control' and 'Traffic Control' below for safety and operating recommendations.</i></p>
<b>UTILITIES</b>			
Are utilities located in or adjacent to the proposed treatment area? i.e., power lines, gas lines, etc.	<u>Yes</u>	No	<p><b>All TUs:</b> A wooden-pole residential overhead powerline transects part of the TU (as shown on map). Refer to Consultation – General, "BC Hydro" for best management practices.</p>
<b>ACCESS CONTROL</b>			
Are there any foreseen issues with access and access control during and post treatment?	<u>Yes</u>	No	<p><b>All TUs:</b> Public access is open via a road into the recycling centre. Access will need to be restricted during operations and blocked during all tree felling activities. There is an active gate at the road entrance that can be locked to accomplish this.</p> <p><i>For all units, See Section I. 'Roads, Landings, and Trails' for more detail on access and staging.</i></p>
<b>TRAFFIC CONTROL</b>			
Is traffic control required at any point during operations?	<u>Yes</u>	No	<p><b>All TUs:</b> See above.</p>
<b>OTHER</b>			
<p>Wildfire response: All operations must be in compliance with the <i>Wildfire Act and Regulation</i>. Use of machinery (power saws, ATV's, etc.) and pile burning is associated with higher risk for accidental wildfire ignition if conducted during the fire season. When treatment activities take place during the fire season, it is recommended that a project notice is sent to the Cortes Island Fire Rescue and the BCWS Coastal Fire Centre.</p>			

## H. STAND AND STOCK TABLE: TU 1

**Statement of Limitations:** Stand descriptions and pre-harvest stand structure numbers are estimates only and should not be relied upon by Contractors for estimating budgets used in bidding or tender preparation. Contractors are responsible for conducting site visits to gather sufficient information for tender preparation.

Species and Diameter Class	Average Crown to Base Height (m)	Average Tree Height (m)	STEMS PER HECTARE (sph)			VOLUME PER HECTARE (m <sup>3</sup> /ha)		
			Existing	Cut	Leave	Existing	Cut	Leave
<b>Layer 1 (&gt; 27.5 cm dbh)*</b>								
Fd	12.0	26.9	115	0	115	140	0	140
Cw	1.5	29.0	58	0	58	97	0	97
Hw	6.0	31.5	38	24	14	30	17	13
Pl	2.0	27.0	24	0	24	13	0	13
Pw	16.0	24.5	16	0	16	12	0	12
Total All Species	-	-	251	38	213	292	17	275
Total Conifers (live)	-	-	251	38	213	292	17	275
<b>Layer 1 (&gt; 22.5 cm - 27.5 cm dbh)*</b>								
Fd	10.0	20.5	35	0	35	9	0	9
Cw	1.5	21.0	58	0	58	19	0	19
Hw	5.0	27.0	30	15	15	13	6	7
Total All Species	-	-	123	15	108	41	6	35
Total Conifers (live)	-	-	123	15	108	41	6	35
<b>Layer 1 (&gt; 17.5cm dbh - 22.5 cm dbh)</b>								
Cw	1.0	14.0	47	0	47	6	0	6
Hw	3.0	24.0	52	26	26	11	6	5
Pl	3.0	24.0	46	0	46	13	0	13
Dead	-	15.0	47	47	0	5	5	0
Total All Species	-	-	192	73	119	35	11	24
Total Conifers (live)	-	-	145	26	119	30	6	24
<b>Layer 1s (≥ 12.5 cm - 17.5 cm dbh)</b>								
Fd	4.0	16.0	100	100	0	9	9	0
Cw	1.0	12.0	40	40	0	4	4	0
Dead	-	12.0	60	60	0	5	5	0
Total All Species	-	-	200	200	0	18	18	0
Total Conifers (live)	-	-	140	140	0	13	13	0
<b>Total Layer 1</b>								
Total Layer - All Species	n/a	n/a	706	326	440	386	52	334
Total Layer - Live Conifers Only	n/a	n/a	659	219	440	376	42	334
<b>Layer 2 (≥ 7.5 - 12.5 dbh)</b>								
Fd	.5	8.0	80	80	0	-	-	-
Cw	.5	5.0	80	80	0	-	-	-
Hw	.5	6.0	20	20	0	-	-	-
Dead	-	5.0	160	160	0	-	-	-
Total Layer 2 - All Species	-	-	340	340	0	-	-	-

Layer 3 (≥ 1.3m height - 7.5cm dbh)								
Cw	0.2	2.0	60	60	0	-	-	-
Hw	0.2	2.0	240	240	0	-	-	-
Pw	0.5	2.0	20	0	20			
Dead	-	2.0	280	280	0	-	-	-
<b>Total Layer 3 - All Species</b>	-	-	<b>600</b>	<b>580</b>	<b>20</b>	-	-	-
Layer 4 (<1.3m height)								
Cw	0.0	<0.5	80	80	0	-	-	-
Hw	0.0	<0.5	880	880	0	-	-	-
Dead	-	<0.5	60	60	0	-	-	-
<b>Total Layer 4 - All Species</b>	-	-	<b>1020</b>	<b>1020</b>	<b>0</b>	-	-	-
<b>SURFACE FUEL LOADING (kg/m<sup>2</sup>)</b>	<b>Existing average total fuel loading:</b> Fine + Medium = 0.5 kg/m <sup>2</sup> Coarse = 0.2 kg/m <sup>2</sup>		<b>Fine and medium woody debris (&lt;7.0 cm diameter):</b> Maintain at <math>\leq 1.0\text{ kg/m}^2</math>. <b>Coarse woody debris (CWD) (&gt;7.0 cm diameter):</b> Retain at <math>\leq 0.5\text{ kg/m}^2</math>. Wildlife logs will not be counted in the loading target, but instead have a piece target listed below. <b>Wildlife Logs (CWD) (&gt;22.5 cm diameter):</b> 50 pieces/ha					
	<b>Distribution:</b> Fine and medium debris is scattered throughout the unit, but hazardous build-ups occur in depressions, in areas of clumped trees, and where dead trees have fallen.		<b>Distribution:</b> Fine and medium woody debris should be reduced in depressions and concentration areas where build-up has occurred and left scattered throughout the unit. CWD should be spaced at a minimum 1 m from other pieces along its length and left on or as close to the ground as possible. CWD that is decay class III or greater does not count towards CWD fuel loading.					
	Method used to measure: US Forest Service (Rocky Mountain Research Station) Photoload Sampling Technique							
<b>Crown Closure (%) (dominant, co-dominant)</b>	Existing: 50%		Target: No target is set for post-treatment crown closure as the tree removal strategy is based on species and diameter class, not crown position. However, it is expected that an incidental reduction in crown closure will occur in the range 5-10%					

BIODIVERSITY AND FOREST HEALTH CONSIDERATIONS AND TARGETS	
<b>WILDLIFE LOG RETENTION TARGET - SPH and Distribution</b>	<p>Wildlife logs provide valuable habitat for small mammals, plants, insects and other organisms. Larger pieces are particularly valuable as habitat elements. <b>Approximately 50 pieces/ha of wildlife logs should be retained, with a preference for larger (&gt;22.5 cm diameter, measured at one butt end of log) pieces.</b> These wildlife logs should have a minimum length of 3 m with longer pieces preferred. Retained wildlife logs should be bucked if necessary, so that they lay flat on the ground along 70% or more of their length. Distribution of CWD should be scattered (not piled or continuous) and logs should be separated by a minimum of 1 m. Existing decayed (class III and above) large diameter wildlife logs will be retained to enhance wildlife habitat and provide ecosystem values and will not be counted in the target.</p> <p><b>All TUs:</b> CWD above the retention targets must be bucked, piled, and removed off-site to an approved green waste or incineration facility. There is potential for it to be made available as firewood to residents. See Stand Modification Treatments: Other, below.</p>
<b>WILDLIFE TREE RETENTION TARGET</b>	The contractor(s) must conduct a Wildlife/Danger Tree Assessment to identify and retain high value wildlife trees in the treatment area, without unduly reducing the effectiveness of the fuel management treatment. The retention of trees with cavities or broken tops should be maximized. Hazardous trees (as defined in the

	<p>Workers' Compensation Board Occupational Health and Safety Regulation Part 26: Forestry Operations and Similar Activities) must be assessed for risk, and if determined to pose a risk to workers, be removed or have a No Work Zone (NWZ) established of suitable size to protect workers. This assessment must be done by a qualified individual who has completed a training program acceptable to the WorkSafeBC Board. The responsibility of ensuring this assessment is completed lies with the Designated Prime Contractor of the forestry operation.</p> <p><i>No more than 5% of the treatment area may be designated as NWZs without review and approval from by a contract supervisor.</i> The shape and size of the NWZ should be determined based on the nature of the hazard and the lean of the tree and should aim to reduce the amount of area removed from the treatment.</p>
<p><b>FOREST HEALTH</b></p>	<p><b>All TUs:</b> The following forest health strategies will be applied: dead stems will be targeted for removal before healthy stems unless they are identified as a high value wildlife tree and are assessed as safe to retain.</p> <p>Hemlock mistletoe is present in many overstory (mature) western hemlocks in the TU. Of the most heavily infected trees, the resulting branch brooms and weakened boles make them a risk to continued fuel loading in the TU. <i>For this reason, this prescription aims to have heavily infected trees removed.</i> It is estimated that hemlock removal, by dbh class, will be:</p> <ul style="list-style-type: none"> <li>&gt;35.0cm dbh: remove all Hw (~12 sph)</li> <li>27.5cm – 35.0 cm dbh: remove half of Hw (~13 sph)</li> <li>22.5cm – 27.5 cm dbh: remove half of Hw (~15 sph)</li> <li>17.5cm – 22.5cm dbh: remove half of Hw (~26 sph)</li> </ul> <p>Western white pine is scattered in the over and understory. Due to continuing white pine blister rust infection, all western white pine has been targeted to remain in the TU, giving every chance for resistant individuals the chance to grow and keep their genetic resistant genes (seeds) available to the area in the future.</p> <p><b>Windthrow:</b> Windthrow hazard was rated as Low.</p>

**TREATMENT SPECIFICATIONS SUMMARY**

TU	TREE REMOVAL/RETENTION STRATEGY BY SIZE/SPECIES (Summarize specifications identified in table above)
----	---

Thin from below using the following guidelines:

- From all layers (L1-L4), regardless of dbh: remove all dead stems (unless assessed as wildlife trees).
- From all layers (L1-L4), regardless of dbh: retain all deciduous stems (i.e., arbutus trees).
- From all layers (L1-L4), regardless of dbh: retain all western white pine trees.
- From layers L1s-L4 (dbh <17.5 cm), remove all conifers
- From layer L1 (dbh >17.5cm), remove Hw as follows:
  - >35.0 cm: remove all Hw (~12 sph)
  - 27.5cm – 35.0 cm dbh: remove half of Hw (~13 sph)
  - 22.5cm – 27.5 cm dbh: remove half of Hw (~15 sph)
  - 17.5cm – 22.5cm dbh: remove half of Hw (~26 sph)

- Post-treatment target density (L1-L4) of **475 sph** (~450sph > 17.5cm dbh)  
 - Target intertree distance (L1-L4) of **4.9 m**.

Although uniform thinning is preferred, it is likely not possible due to stand variability. The Site Supervisor may approve clumpy retention where appropriate. Refer to Section H above and figure below for existing stocking and prescribed cutting specifications by diameter class.

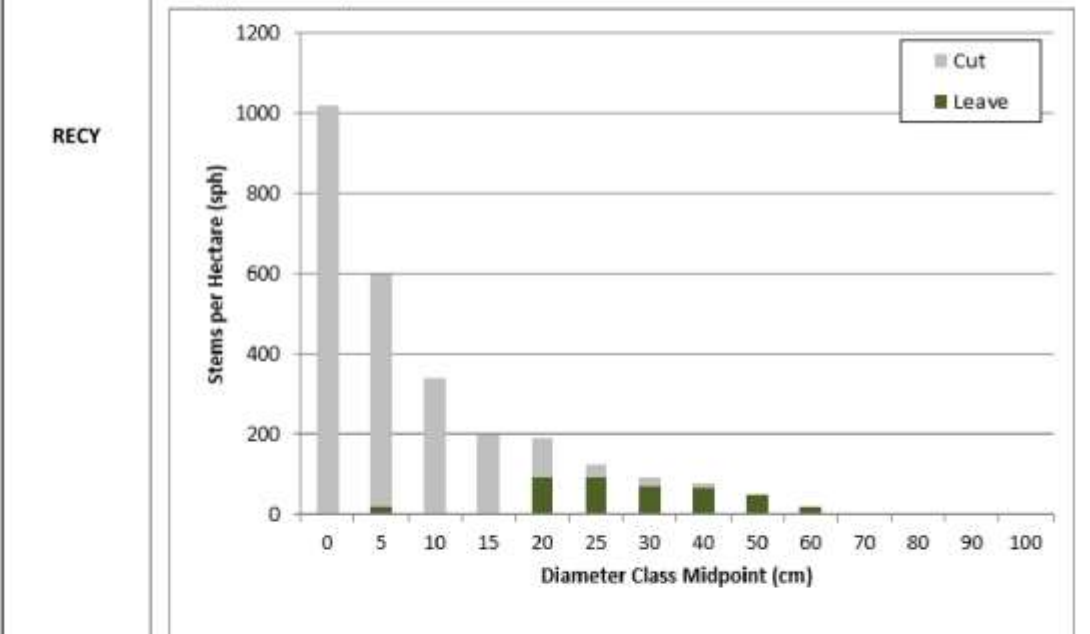


Figure 1. Cutting specifications for RECY: stems per hectare (sph) cut and leave

**TREATMENT SPECIFICATION RATIONALE** (See notes to assist)

The unit under prescription is intended to limit fire behaviour potential and provide suppression crews with an improved opportunity to protect hazardous materials in the Cortes Island recycling centre from propagating a wildfire (flame or ember shower) or starting a wildfire from ignition/explosion within the recycling centre. The prescription calls for a reduction in surface fuel loading (mostly in hazardous clumps/depressions), ladder fuels and vertical and horizontal fuel continuity, to create a surrounding polygon fuel-break. Fuel management in the treatment unit will function to reduce aggressive fire behaviour to an extent that will limit crown fire behaviour, improve fire-retardant efficacies, and the ability of fire crews to apply direct attack at the fire front. This fuel management prescription provides the prescriptive guidelines as well as the recommended treatment activities to implement a proactive wildfire hazard reduction project.

<p>The overall intents of this prescription are to:</p> <ol style="list-style-type: none"> <li>1) Develop a fuel treatment area that will meet the objective of public safety and wildfire risk reduction while maintaining ecosystem structure and function by pruning and removing dead and suppressed understory stems, fuel continuity, and ladder fuels, thereby increasing the fuel strata gap. In conjunction with reducing surface fuel loading (fine, medium, and coarse woody debris), the critical surface fire intensity threshold is raised, thereby reducing the probability of crown fire initiation.</li> <li>2) Create a demonstration project in a publicly accessible and easy to view area that shows wildfire risk reduction and FireSmart activities that Cortes Island residents can employ on their own properties.</li> <li>3) Create work for applicable local contractors as part of the FireSmart Economic Recovery Fund.</li> </ol>
<p><b>I. TREATMENT DESCRIPTION</b></p>
<p><b>MERCHANTABLE TIMBER HARVEST</b></p>
<p><b>ROADS, LANDINGS AND TRAILS:</b> No road construction nor trails will need to be created within the TU. Removed fibre can be pulled to the treeline edge of the recycling centre and chipped/binned as required. Access to the recycling centre and treatment unit is via a small road off Squirrel Cove Road.</p>
<p><b>FELLING:</b> Hand felling with chainsaw or brush saw is the preferred and prescribed tree felling method. Prescribed maximum stump height is 20 cm, cut at an angle &lt;10 degrees.</p>
<p><b>YARDING/SKIDDING:</b> n/a</p>
<p><b>LOADING AND HAULING:</b> Loading and hauling of all merchantable and alternate fibre usage stems is preferred.</p>
<p><b>SLASH DISPOSAL:</b> Pruning, regen brushing, bucking, and piling of slash and surface fuel should be done outside the fire season. Options for slash disposal are described in sections below. The contractor may remove wood waste (non-merchantable timber, branches etc.) via the use of a large bin or container. If this is proposed, the Site Supervisor and Prime Contractor (Contract Supervisor), in consultation with the CFGP and Strathcona Regional District, will agree on the location(s) for the bin or container within the recycling centre facility to facilitate the safe and efficient transport of wood waste to a local composting or fuel facility. Slash may be chipped or mulched prior to transport. If this is not feasible, then pile and burn is prescribed.</p>
<p><b>SITE DISTURBANCE:</b> During burning, debris hauling, and/or equipment transport:</p> <ul style="list-style-type: none"> <li>• Minimize soil disturbance (&lt;5%, see Section F-Values and <i>Forest and Range Practices Act</i>) and forest floor displacement.</li> <li>• Minimize visual impact of harvest and maintain cut stump height at less or equal to 20 cm from ground.</li> <li>• Should an unacceptable level of soil disturbance occur within the treatment area, the Contract Supervisor will develop an appropriate rehabilitation plan.</li> <li>• At the minimum, pre-existing trails will be maintained in or restored to pre-treatment condition. The Site Supervisor has the discretion to specify a higher standard of trail restoration or rehabilitation after the completion of fuel management activities.</li> </ul>
<p><b>SPECIAL MEASURES:</b> n/a</p>
<p><b>STAND MODIFICATION TREATMENTS</b></p>
<p><b>MERCHANTABLE TIMBER UTILIZATION:</b> Was commercial timber harvest considered? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Estimate volumes (m<sup>3</sup> /ha) to be removed (*This estimate assumes all live standing conifers with a dbh &gt;= 17.5cm to be merchantable): <b>All TUs:</b> Live merchantable volume = 42 m<sup>3</sup>/ha Dead fibre utilization volume = 0 m<sup>3</sup>/ha</p>
<p><b>BRUSHING:</b> Brushing activities to achieve thinning targets is allowed.</p>
<p><b>PRUNING:</b> Prune branches on retained conifers to 3 m above ground.</p>
<p><b>THINNING:</b> Existing stand condition and target retention density for the treatment units are described in detail in Section H of this prescription. The target density was determined with consideration for existing stand structure, wildlife habitat, visual quality, and wildfire threat reduction objectives.</p>



<b>DEBRIS PILING:</b> Manual debris piling will be used as necessary to facilitate chipping and hauling of debris.
<b>PILE BURNING:</b> Pile burning is not prescribed.
<b>MULCHING/CHIPPING:</b> Prescribed, in conjunction with removal via a bin, truck, or container.
<b>MASTICATION:</b> Not prescribed.
<b>GRINDING:</b> Not prescribed.
<b>PRESCRIBED FIRE:</b> Not prescribed.
<b>PLANTING:</b> Not prescribed.
<b>OTHER:</b> There is potential for firewood production through thinning, especially of non-merchantable dead wood (and some merchantable wood). If firewood production occurs, firewood will be left at designated locations to facilitate pickup by community members. The pickup location must be approved by the contract supervisor, CFGP, and Strathcona Regional District. Piece size should not exceed 1.5 m in length. The contractor must ensure that all wood is removed from the site prior to project completion.
<b>AUTHORIZATION AND TIMBER TENURE</b>
<b>FRPA Section 52:</b> Potentially applicable. If not, then see FLTC below.
<b>Forestry Licence to Cut (FLTC):</b> Applicable (in the form of a cutting permit) – cutting authorization can be applied for under the Community Forest’s existing cutting permit.
<b>Park Use Permit:</b> Not applicable.
<b>Road Permit or Road Use Permit:</b> Not applicable.
<b>Other (i.e. local government, utilities, etc.):</b> CFGP approval.
<b>J. POST TREATMENT</b>
<b>EXPECTED VEGETATION RESPONSE:</b> This prescription is expected to achieve the outlined fuel management objectives for a period of approximately 15-20 years. After this time, it is expected that understorey regeneration in gaps may create ladder fuels that are likely to incrementally increase hazard and potential fire behaviour. Natural overstorey mortality will lead to an increase in coarse woody debris and surface accumulations over this time frame. A moderate response in the growth of understorey herbs and shrubs is expected due to increased light penetration to the forest floor.
<b>ADDITIONAL TREATMENTS OR MAINTENANCE:</b> Maintenance may be required at about the 15-20 year mark following treatment implementation. Maintenance required at a future time may include understorey thinning, brushing and removal of flammable vegetation, and/or surface fuel disposal to perpetuate the effectiveness of the treatment.
<b>SILVICULTURE OBLIGATIONS:</b> Do silvicultural obligations apply to the treatment area? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>PLANTING:</b> Is planting a treatment identified in this prescription or required as a legislative obligation? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>*Planting is a legislative obligation, but is not required.</i>
<b>STOCKING STANDARDS:</b> Do standards apply to the treatment area? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>This prescription retains a fully stocked stand as per the Cortes Forestry General Partnership FSP, Appendix B: Stocking Standards for the CWHxm 03 (Table 4(b): Intermediate Cut Stocking Standards):</i> <ul style="list-style-type: none"> <li>• Ecologically suitable species = Fd, Pl (if on nutrient poor sites), Cw, Hw, Pw</li> <li>• Target stocking basal area = 40m<sup>2</sup>/ha</li> <li>• The resulting stand (outlined above in H. STAND AND STOCK TABLE: TU 1 and summarized in H: TREATMENT SPECIFICATIONS SUMMARY) is expected to maintain ~40m<sup>2</sup>/ha basal area in the L1 and L1s layers consisting of Fd, Cw, Pw, and Hw.</li> </ul>
<b>K. Outstanding Works</b>
<ol style="list-style-type: none"> <li>1. A cutting authorization must be applied for and approved by the District. It may qualify under a FRPA Sec. 52 license, but if not then a cutting permit can be applied for under the Community Forest’s active cutting permit.</li> <li>2. Flagging/Ribboning: <ul style="list-style-type: none"> <li>• Immediately prior to treatment implementation, flagging of boundaries and falling corners must be checked and ‘refreshed’ where required.</li> </ul> </li> <li>3. Prior to the commencement of treatment activities, a Wildlife/Danger Tree Assessment must be performed by a person who holds a valid certificate issued under the Wildlife/Danger Tree Assessor’s Certificate Program. At this time, the</li> </ol>





<b>M. ATTACHMENTS</b>	
MAPS: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	FIELD DATA CARDS: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
WUI WTA Plots and Photos: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CRUISE DATA: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
AIR PHOTOS/IMAGERY: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	BURN PLAN: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
MODELING/DATA ANALYSIS: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	OTHER: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
TERRAIN STABILITY ASSESSMENT Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Completed By: Date:	VISUAL IMPACT ASSESSMENT Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Completed By: Date:
ARCHAEOLOGY IMPACT ASSESSMENT Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Completed By: Date:	BIOLOGIST ASSESSMENT Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Completed By: Date:
ADDITIONAL COMMENTS:	

**Appendix A: Photographs of Treatment Units**

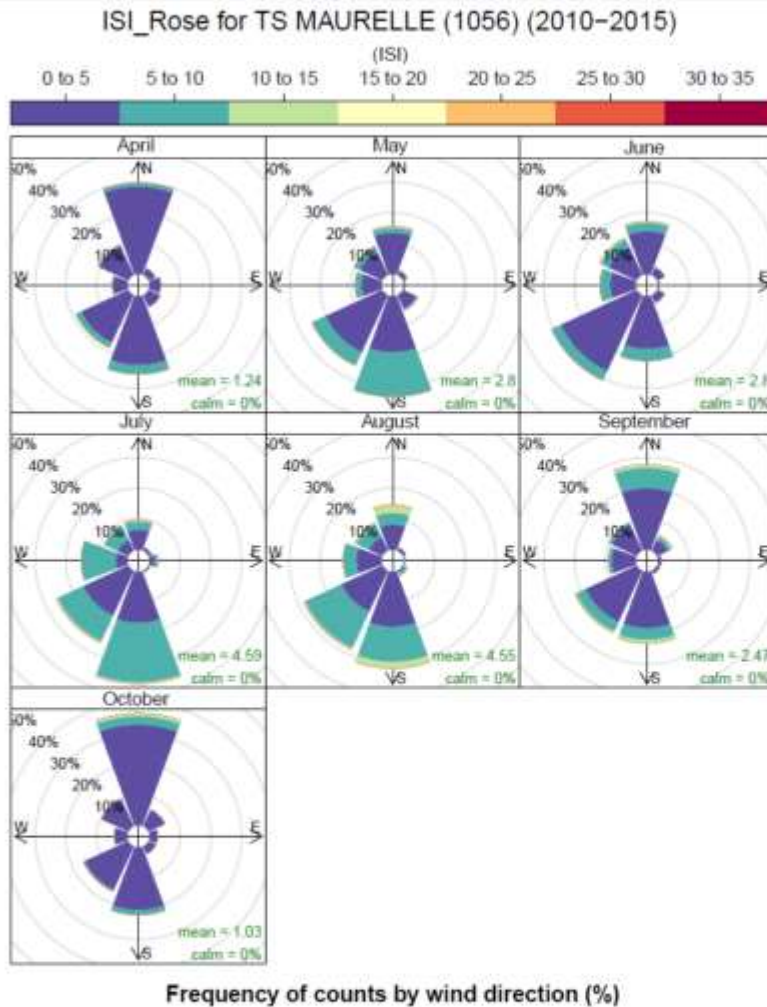


Appendix B: Picture of severely mistletoe-infected western hemlock tree that should be removed.



**Appendix C: Wind Rose**

**Figure 1: Initial Spread Index (ISI) roses depicting the average frequency of ISI values by wind direction for four 6-hour periods over the fire season April – October. Data taken from the Maurelle Island weather station (~24 km northeast of the treatment unit) from 1996 to 2015.**



PROJECT:

**WILDLAND URBAN INTERFACE WILDFIRE THREAT ASSESSMENT WORKSHEET**  Pre-treatment  Post-treatment

Parc: RECY-2      Community: Cortes Island FMP  
 Address: L. Orleans      Geographic Location/Street Name: Recycling Centre  
 Date: 3/2/21      GPS/UTM: 50°05'42.7" N, 124°54'44.9" W  
 Photos:  A  B  C  D  E  F  
 Land Ownership:  Crown  Private  I.R. Other (specify): Comm For.

Est. Fuel Type  
C-3

COMPONENT (Subcomponent)	LEVELS				
	A	B	C	D	E
<b>Fuel</b>					
1. Soil Depth and Moisture Regime (cm)	1-2 3	3-5 Dry Total Wet	5-10 Dry Total Wet	10-18 Dry Total Wet	>18 Dry Total Wet
2. Surface Fuel Continuity (% cover)	<20 3	20-40 2	41-60 2	61-80 4	>80 5
3. Vegetation Fuel Composition	Max. herbs, irrigated crops, low flammability weeds 1	Herbs, Bracken Shrubs 2	Lichens, Grass Shrubs 3	Perennials, Juniper 4	Leguminosae, Ranunculaceae, Average Brack, Scaevola shrub 5
4. Fine Woody Debris Continuity (% cover)	<1 coverage 1	Scattered, <10 coverage 5	10-25 coverage 7	>25 coverage, <30 on deep 18	>25 coverage, >30 on deep 15
5. Large Woody Debris Continuity (% cover)	<1 coverage 1	Scattered, <10 coverage 2	10-25 coverage 3	>25 coverage, not situated 7	>25 coverage, partially elevated 10
6. Live and Dead Continuous Crown Closure (%)	<20 2	20-40 5	41-60 30	61-80 15	>80 10
7. Live Deciduous Crown Closure (%)	>80 or <40% continuous crown closure 3	61-80 2	41-60 3	20-40 4	<20 5
8. Live and Dead Canopy Cover Area Height (m)	5+ or <20% canopy cover closure 3	3-5 5	3-10 7	1-2 10	<1 13
9. Live and Dead Suppression and Substratum (timber) (stratified)	0-500 3	501-1000 5	1001-2000 10	2001-4000 20	>4000 30
10. Forest health (% of dominant and co-dominant trees)	Standing Dead and Partly Dead < 5 or <20 stems/ha 3	Standing Dead and Partly Dead 5-25 5	Standing Dead and Partly Dead >25-50 10	Standing Dead and Partly Dead >50-75 20	Standing Dead and Partly Dead >75 30
11. Continuous Forest/Slash Cover within 200 (m)	0-20 3	21-40 3	41-60 5	61-80 7	>80 10
<b>Sub Total</b>					<b>68</b> /155*

96  
Hardwood  
(M-1/2)

Weather	A	B	C	D	E
12. Regional Fire Zone	#1, Irrigated 1	CWV, CFI, MH Dry Total Wet 3	DL, SRS, EISF Dry Total Wet 3	DR, MS, SRS, CWV d1 & d2, RWIS, SRS - Dry Total Wet 10	PE, B1 15
13. Historical Wildfire Incidence (by WMB Fire Zone)	65, 81, 82, 86, 85, 89, 95, 93, 85, 88, 91 1	67, 68, 83, 84, 96, 87, 65, 88 3	67, 65, 64, 63, 95, 61, 86 6	81, 85, 83, 62, 63, 85, 86, 84, 87, 82 18	87, 94, 82, 81 15
<b>Sub Total</b>					<b>6</b> /39

Topography	A	B	C	D	E
14. Aspects (> 25% slope)	North 8	East 5	<10% slope all aspects 10	West 12	South 15
15. Slope (%)	<15 1	16-29 and was scored for North slopes 5	30-44 10	45-54 12	>55 15
16. Terrain	Flat 1	Rolling 3	Sloped terrain, minor low relief drops 5	Consistent slope, deep depress or shallow gullies 7	Consistent slope, deep gullies 10
17. Landscape/Topographic Continuity to Wildfire Spread	< 5 ha isolated forest land 1	North and/or east aspects dominate, wildfire spread restricted from South and/or West 2	Mountainous terrain, broken topography, regular aspect and slope changes, multiple restrictions to wildfire spread 5	Rolling terrain, minor water bodies, minimal aspect and slope changes, minor restrictions to wildfire spread 10	Continuous, consistent topography, no restrictions to wildfire spread 15
<b>Sub Total</b>					<b>30</b> /55

FUEL WEATHER AND TOPOGRAPHY	WILDFIRE BEHAVIOUR THREAT SCORE				
Structural	A	B	C	D	E
18. Position of Structures/Community on Slope	No Structures Values within 2 km 8	Bottom of slope, valley bottom 5	Mid slope, benchland, elevated valley, >10% slope 10	Mid slope continuous, >15% slope 12	Upper 1/3 of Slope 15
19. Type of Development	No Structures Values within 2 km 8	Perimeter interfaces, no enclosures 3	Perimeter interfaces, with enclosures 5	Interior > 1 structure/ha 8	Interior < 1 structure/ha, Infrastructure 10
20. Position of Assessment Area Relative to Values	No Structures Values within 2 km 8	Above >500 100-200 <200 m 3	Subcell >100 100-150 <200 m 5	Flat/rolling >500 100-150 <200 m 3	Arise >500 100-150 <200 m 1
<b>Sub Total</b>					<b>104</b> /240**

\* Proceed only if fuel sub total > 25.  
 \*\* Proceed to Structural component only if Wildfire Threat Behaviour score is >10 for untreated properties.

**WILDLAND URBAN INTERFACE WILDFIRE THREAT SCORE** 47 /55  
**TOTAL WILDFIRE THREAT SCORE** 151 /295

**Wildfire Behaviour Threat Class** (check applicable class)

Low 0-40   
 Moderate 41-95   
 High 96-149   
 Extreme >149

**Wildland Urban Interface Threat Class** (check applicable class)

Low 0-13   
 Moderate 14-26   
 High 27-39   
 Extreme >39

Comments:



Photo Direction

Comment:

Forest Floor	Other (specif	
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Photo Direction Comment:

Forest Floor	Other (specif	
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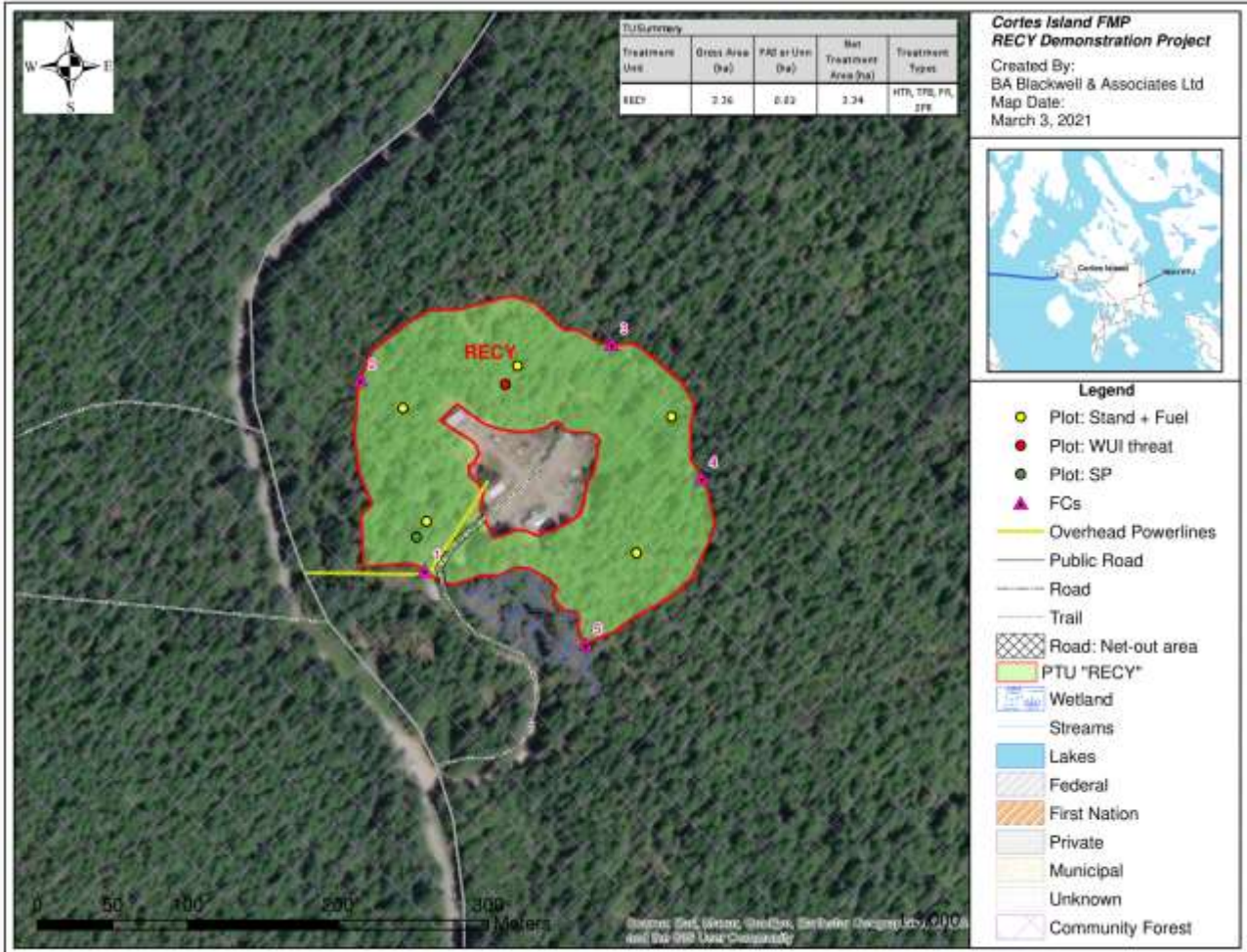
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## Preliminary Field Reconnaissance



IN SITU  
anthropology > archaeology

Preliminary Field Reconnaissance of Cortes Island Fuel Management Treatment Plans (CARR, SQUIR, and RECY), Cortes Island, southwestern British Columbia

<b>File Number</b>	TLA21091301
<b>Project Description</b>	Preliminary Field Reconnaissance (PFR)
<b>First Nation(s)</b>	Tla'amin (təʔamen) Nation, Klahoose (ləʔos) Nation, Homalco (Xwémalhkwu) Nation
<b>Proponent</b>	BA Blackwell & Associates Ltd. 270 – 18 Gostick Place, North Vancouver, BC V7M 3G3 <a href="https://www.bablackwell.com">https://www.bablackwell.com</a>
<b>Proponent Contact</b>	Louis Orioux, RPF B.A. Blackwell and Associates Ltd. 270-18 Gostick Place, North Vancouver BC, V7M 3G3 604-368-1914 <a href="http://www.bablackwell.com">www.bablackwell.com</a>
<b>Survey Identifier</b>	Cortes Island Fuel Management Treatment Plan (CARR, SQUIR, RECY)
<b>Legal Description</b>	1. PID 009-999-639, PIN 0741361, NE1/4, Section 37, Cortes Island, Sayward District (CARR) 2. PIN 1294680, DL 860, Plan 17TR2 SAYWARD, Cortes Island, Sayward District (SQUIR) 3. PIN1310840, Plan 17TR2 SAYWARD, SE 1/4, Section 26, Cortes Island, Sayward District (RECY)
<b>Study Area</b>	10.8 ha (CARR) 6.5 ha (SQUIR) 3.34 ha (RECY)
<b>Survey Date</b>	November 26 <sup>th</sup> , 2021
<b>Survey Crew</b>	Kenzie Jessome, MA (In Situ Archaeology), Jason Francis (Tla'amin First Nation [TFN]), Bryce McKenzie (TFN Guardian Watchman), Andrew Timothy (TFN Guardian Watchman)
<b>Report Author</b>	Jess Harrison, BA
<b>Report Date</b>	December 29, 2021

**1.0 MANAGEMENT SUMMARY:** In Situ Archaeology's Kenzie Jessome lead a Forestry Preliminary Field Reconnaissance (PFR) surface survey with Jason Francis (Tla'amin First Nation Archaeological Technician [TFN]), Bryce McKenzie and Andrew Timothy (TFN Guardian Watchmen), of three (3) Cortes Island Fuel Management Treatment Units (TU). The three treatment units, CARR, SQUIR, and RECY, are all located in Cortez Island, which lies within Tla'amin Nation (formerly known as the Sliammon First Nation), Xw?malhkwu (Homalco) First Nation, and Klahoose First Nation lands, in southwestern British Columbia (Map 1). This study was conducted to assess the observable presence of archaeological materials or areas of raised

archaeological potential within the survey areas prior to proposed forestry development. During the surveys, no archaeological materials, areas of raised potential or old growth trees were identified within the boundaries of the surveyed units. **However, two (2) Post-1846 Culturally Modified Trees (CMTs) and an area with flat topography and elevated archaeological potential (AOP) were positively identified above the beach immediately southeast of the surveyed treatment units SQUIR (Map 2). Consultation with affected First Nations is recommended to establish whether a protective buffer is required around the CMTs.**



## 2.0 DEVELOPMENT INFORMATION

**2.1 Development Details:** This Preliminary Field Reconnaissance (PFR) surface survey was conducted for the proposed development at the following parcels: Section 26, Section 37 and District Lot 860, Cortes Island, Sayward District (Map 1). The survey encompassed the entire area of Treatment Units (TU) RECY, SQUIR, and CARR. Current planned developments include implementation of wildfire forest fuel management prescriptions to reduce wildfire behaviour through felling of dead and understory trees and removal of woody fuel accumulations on the ground. The RECY TU would be completed by people on the ground with chainsaws and brush-saws whilst the CARR and SQUIR TUs would be completed by a combination of logging-type machines and hand removal.

**2.2 Reason for Assessment:** This PFR was requested by B.A. Blackwell and Associates Ltd. following discussions with the Tla'amin Nation, to ensure that the proposed developments would comply with the *Heritage Conservation Act* (1996). Specifically, the study was designed to assess the observable presence of archaeological resources or areas of raised archaeological potential and to make recommendations ensuring all proposed development activities will be conducted in accordance with Provincial law and in a manner that respects the significant and deeply rooted cultural heritage of the Tla'amin (ᑖᑖᑖᑖᑖᑖ) Nation, the Klahoose (ᑖᑖᑖᑖᑖᑖ) First Nation, and the Homalco (Xwémalkwu) First Nation. The Klahoose (ᑖᑖᑖᑖᑖᑖ) and Homalco First Nations (Xwémalkwu) have deferred to the Tla'amin (ᑖᑖᑖᑖᑖᑖ) Nation regarding archaeological comments on this development.

## 3.0 ARCHAEOLOGICAL POTENTIAL ASSESSMENT

The archaeological potential of the surveyed area was assessed based on three factors: i) the natural composition of the land; ii) the current state of the land; and iii) relevant ethnographic and archaeological data.

**3.1 Natural Composition of the Land:** The study area is located on Cortes Island which is in a coastal marine environment within the Coastal Western Hemlock biogeoclimatic zone (CWH), Very Dry Maritime (xm1) subzone (Pojar et al 1991:96; UBC 2019). The CWH is characterized by cool summers with occasional hot dry spells, and mild winters. It is British Columbia's rainiest zone with a mean annual precipitation of 2200 mm, which ranges between 1000 to 4400 mm across the region. Mean annual temperature for the entire zone is 5.5°C; however, the southern, coastal subzone in which the study area is located has a mean annual temperature of 9.3°C (UBC 2019).

Forest composition in the study area is predominantly western hemlock (*Tsuga heterophylla*), balsam fir (*Abies balsamea*), and Douglas fir (*Pseudotsuga menziesii*) with lesser amounts of western red cedar (*Thuja plicata*) and western white pine (*Pinus monticola*). Understory growth consisted of Oregon grape (*Mahonia aquifolium*), salal (*Gaultheria shallon*), huckleberry (*Vaccinium* spp.) with a ground cover of trailing blackberry (*Rubus ursinus*), sword fern



(*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), and various mosses. Vegetation and forest composition, age, etc., varied between the three TUs (as discussed in Sections 5.1-5.3, below)

Geologically, this region is part of the coast plutonic complex, which contains primarily granodiorite and quartz diorite bedrock (Monger and Journeay 1994). The study area is in an area of mapped granodiorite bedrock, which generally does not make suitable lithic stone tools (British Columbia Geological Survey 2020); however, secondary deposits of high-quality stone can be present in tills (Rorabaugh et al. 2015; Reimer 2018).

Cortes Island is the first Discovery Island at the entrance to Desolation Sound. Three areas were visited in the survey: CARR, RECY, and SQUIR. CARR is located on the west coast of Cortes Island near Coulter Bay, and approximately 500 m inland of the shore. The terrain throughout the CARR-TU is varied within the block with rocky knolls and bedrock outcrops, the area near the waterfront being relatively flat with an abrupt slope to steeper ground as one heads east. The study area has been historically logged and has constructed roads and trails throughout.

The other two areas, RECY and SQUIR, are located approximately 200 m inland on the eastern shore of Cortes Island in Squirrel Cove. The landscape here is composed of second and third growth forest, with older stands on fringes of the block being approximately 120 years old. There were also exposures of soil and diorite granite bedrock as well as weathered boulders noted in the survey. Overall, the inland terrain is steeper and rockier with scatterings of boulders, then becomes flatter nearing the edge of the tree line, gradually sloping to the ocean. There are uneven and poorly draining areas with pooling water in the SQUIR unit.

**3.3 Current State of the Land:** The blocks have been harvested and subject to various forestry developments that disturbed the ground in the past. Burn scars, tool marks, remnant stumps and healing lobes are indicators of past timber extraction and the forest is young, predominated by second and third stage growth. Old growth is marginal, demonstrating the significant impact of historical timber harvesting and activities on the island's forests.

**3.4 Ethnographic and Archaeological Background:** The study area is located within the traditional territory of the Tla'amin (ṭəʔamən) Nation, the Klahoose (ḷoʔos) First Nation, and the Homalco (Xwémalkwu) First Nation. The Tla'amin (ṭəʔamən), the Klahoose (ḷoʔos), and the Homalco (Xwémalkwu) (along with the K'omoks) have been grouped by anthropologist as the 'Mainland Comox' due to their shared language (Comox).

The ṭəʔamən are a Coast Salish people whose lands straddle the Salish Sea, encompassing Texada Island in the south, the Upper Sunshine Coast including Powell River to the east, and a portion of eastern Vancouver Island including Courtenay to the west (Paul 2014:65; Walley and Jessome, 2019:4). Ethnographic research maintains that the ṭəʔamən people occupied two permanent settlements: one by which was used in the fall and winter months; the other in spring and summer. Some of the primary settlements were Theodosia, Desolation Sound, Coast of the Malaspina Strait, and Powell River (Tiskw'at) (Tla'amin First Nation - FirstVoices, 2021).



A təʔamən story, *The Raven and the Wind-Marker*, alludes to the great antiquity of the təʔamən Nation in this portion of SW British Columbia; "Our people have always lived here and the wind has always blown" (Noel George Harry in Kennedy and Bouchard 1983:11). George explains the "populating of their country and origins of various aspects of their way of life [and]...the beginnings of all Sliammon [təʔamən] people" (Kennedy and Bouchard 1983:12-13).

Another story, as told by Murray Mitchell, describes the first contact between the təʔamən and Europeans in 1792;

The people were out fishing in their canoes when they saw a couple of floating islands with sticks on them...As these approached, they were surprised to hear someone ask how they were doing in their own language. It turned out that when Vancouver and the Spanish captains Galiano and Valdes had passed through the Sliammon/Texada area, they had taken a local man aboard who was showing them around and telling them Native names for things. He was also learning English (Murray Mitchell in Harbord 2007:21).

The traditional territories of the ʔoʔos span from Cortes Island to Toba Inlet. The primary village site is located on Cortez Island, at Squirrel Cove (Klahoose First Nation, 2021). The Nation heavily utilized and occupied Ramsey Arm, East and West Redonda Island, and perhaps most intensely, Toba Inlet (a large village site was located at Brem Bay). They also have sites/ancient villages on many other islands in this portion of BC (Kennedy and Bouchard (1983:15-16). Barnett (1955) describes both summer and winter village sites:

According to Chief Julian, the Klahoose long ago built their winter residences underground at a place called *natsoam*, approximately ten miles up the Toba River, where salmon were to be found in winter. In the summer they came down to *klamklams* (at the mouth of the river) and to Salmon Bay for fish and berries. Plank or bark houses were built at the latter place and potlatches were held there (Barnett, 1955:28).

The Xwémalkwu (Homalco) are traditionally known as "people of fast running waters", named after the turbulent waters surrounding the original home in Bute Inlet (Homalco First Nation, 2021). The Xwémalkwu territory includes all of Bute Inlet and Homathco Ice Fields, extends west to Campbell River on Vancouver Island, south to Comox and north to Sayward, including the Discovery Islands and the Discovery Passage. It extends from Dent Island, slightly west of the mouth of Bute Inlet, to the vicinity of Raza Passage and Toba Inlet. Permanent winter village sites were located at Look-out Point (Aaron rapids/Sonora Island), Mushkin Village on Sonora Island and Aupe at the mouth of Bute Inlet, which later became known as Church House (Homalco First Nation, 2021). Large village sites have been identified on Homathko River, on Southgate River and around Orford Bay (Kennedy and Bouchard 1983:14).

According to Barnett (1955), during and prior to European first contact, the təʔamən, ʔoʔos and Xwémalkwu were all congregating for their winter season at Grace Harbor on Malaspina Inlet (Barnet 1955:27). This accords well with emic data recorded by Elsie Paul in her book, *Written as I Remember It: Teachings (?tem taʔaw) from the Life of a Sliammon Elder*. Although cooperation,



trading, feasting, marriages, and political alliances were certainly abundant between these Nations prior to European contact; this winter congregation to share resources at Grace Harbour (*kahkaykay*) may have been partly a response to the devastating series of smallpox epidemics that ravaged through the Coast Salish area in the late 1800s.

Archaeological evidence in this portion of southwestern BC accords exceedingly well with ethnographic data. When synthesized properly, the community knowledge, oral histories, and stories from the landscape can help archaeologists not only locate ancient village and resource extraction sites, but also assist in the interpretation of archaeological evidence(s).

Three (3) archaeological sites fall within 1 km of the study area.

**Table 1.** Previously Recorded Archaeological Sites within 1km of the Study Areas

Borden #	Treatment Unit (TU)	Distance and Direction from the TU	Site Typology
EaSg-14	CARR	600 m, W	Precontact, Cultural Material, Subsurface Shell Midden; Precontact, Traditional Use, Culturally Modified Tree, bark-stripped
EaSg-34	CARR	810 m, W	Subsurface, Shell Midden
EaSg-35	CARR	815 m, W	Precontact, Subsurface, Shell Midden; Historic, Building, Industrial/logging, Cultural Material, surface, refuse

EaSg-14, recorded to be located ~600 m west from the study area, is a large subsurface shell midden and bark-stripping site that was first recorded in 1966 and further recorded in 1992 during an archaeological impact assessment conducted by Arcas Consulting Archaeologists Ltd. under permit 1992-0083. The site was recorded to be in fair condition and was noted to have cultural strata largely intact. Two smaller areas of the site had been impacted by road construction and hand logging for pre-existing housing structures in Coulter Bay. Disturbance from recreational users to the site is low at the northern beach access and greater at the southern beach access.

EaSg-34, located 810 m west of the study area, is a subsurface shell midden that was first identified in 1992 during an archaeological impact assessment conducted by Arcas Consulting Archaeologists Ltd. under permit 1992-0083. The site was recorded to have largely intact cultural strata immediately below the surface, including shell midden with fire-altered rock (FAR).

EaSg-35, located 815 m west of the study area, is a medium sized subsurface shell midden that was first identified in 1992 during an archaeological impact assessment conducted by Arcas Consulting Archaeologists Ltd. under permit 1992-0083. The site was recorded to be in poor to fair condition and has intact cultural strata and an extensive midden deposit located along the beach. However, it has been highly disturbed by a historic logging camp and heavy historical use of the site from the 1920s and 1930s, evident in large amounts of historical garbage (eg. ceramic plates, cans, chain saw chains, glass fragments etc.)



#### 4.0 ARCHAEOLOGICAL FIELD SURVEY DESCRIPTION

On November 26, 2021, archaeologist Kenzie Jessome (In Situ Archaeology), and Tla'amin Nation representatives Jason Francis, Bryce McKenzie, and Andrew Timothy conducted a pedestrian style surface survey of the study area at Cortes Island Fuel Management Plan Treatment Units CARR, SQUIR and RECY (Map 1). Each of the treatment units (TU) were surveyed for archaeological features (e.g., cultural depressions, trees with modifications that may pre-date AD 1846), and areas exhibiting potential for archaeological resources (e.g., landforms and exposures). Mature cedar and Douglas fir trees, as well as any glacial erratics or rock-shelves were inspected for signs of cultural modification. The archaeologist and archaeological technician (Jason Francis) took notes and photographs to document the vegetation, forest cover, and general terrain of the landscape. Only Kenzie Jessome's survey transects are presented on Map 2, but survey coverage was larger as four other surveyors participated in PFR.

As previously recorded Pre-1846 CMT sites have been previously recorded only 500 m away from CARR TU, surveyors specifically designed survey to examine all standing large and older trees and older stumps for evidence of cultural modification (Map 3). Due to excellent visibility, surveyors were spaced in 30-50 m intervals for transecting the treatment unit. The survey of SQUIR covered the entire area of the TU in transects with crew members spaced at 10-15 m intervals or less. For the RECY TU, surveyors covered approximately 90% of the TU in transects with surveyors spaced at 20 m intervals (Map 2).



Detailed Maps of Study Area





## 5.0 SURVEY RESULTS

**5.1 SQUIR (PIN 1294680):** The survey began in the SQUIR TU which lies on the eastern shore of Cortes, near Squirrel Cove (Map 2). The surveyors first conducted a pass/loop in the western most portion of the TU. Noted flora included salal, huckleberry, Oregon Grape, and trailing blackberry with various ferns and mosses. The forest canopy here was composed primarily of third growth western hemlock (*Tsuga heterophylla*), balsam fir (*Abies balsamia*), and western red cedar (*Thuja plicata*) with sporadic deciduous trees. Stand previously harvested 30-50 years ago, indicated by large stumps of previously harvested old growth trees (Fig.1). The terrain in this area of the TU was composed of a flat landscape (~10% slope) that was generally not well-drained, as some standing water was noted (Fig. 2). There is low potential for the presence of archaeological materials in this portion of the TU due to recent ground disturbing activity.



Figure 1. Photo of old growth stump found in the western portion of treatment unit SQUIR.





*Figure 2. View of standing water in western portion of SQUIR. Note several varieties of marshy ferns, like bracken and sword, and several species of moss also in the foreground.*

Next, surveyors took service road SQ2 to access the eastern portion of SQUIR TU. This portion of the block had mature stands of trees older than 120 years and therefore less disturbed. The terrain was rocky and steep (~75% slope) with diorite granite bedrock exposures, weathered bedrock and some subangular (not rounded) to angular boulders indicating fresh breaks (Fig. 3). Tree stand is approximately 120 years old and composed mainly of Western Red Cedar and Douglas fir. As the nature of the landscape is so steep, this makes it inhospitable, and no further survey was conducted in this area.





*Figure 3. Steep and rocky terrain in eastern portion of TU.*

Survey moved on towards the northeastern portion of the TU, where two (2) post-1846 CMTs were identified. On the northern eastern most boundary of the TU and adjacent to a creek, the first post-1846 CMT (CMT No. 1) was identified on the westside of an older western red cedar (Map 2; Fig 4). The height above ground of the scar is 1.10 m, the width is 0.23m, 0.25m in height. There are wedge tool marks at the top of the scar indicating kindling extraction, and the healing lobe is growing over the scar. Approximate age of scar is 100 years though, due to lack of competition and presence of fresh water nearby, the tree might be younger than it appears. The tree's diameter at breast height is 2.0-2.2 m. Approximately 31.38 m due north of the first CMT, on a steep slope across the creek and outside the TU boundary, a second post-1846 CMT (CMT No. 2) was identified (Map 2; Fig. 5). Like the first CMT, this scar is a result of past kindling extraction approximately 100 years ago. Scar is a series of metal tool marks on the eastern side of the tree, with a height above ground of 0.45 m, length of scar is 0.15 m and a width of 0.04 m. There are no taper scars and thus it has not been subject to bark extraction (bark stripping) in the past.





*Figure 4-5. (L-R) Photo showing post-1846 CMT No. 1 on western red cedar immediately adjacent to the TU boundary with tool mark scar visible; photo of second post-1846 CMT No. 2 on western red cedar outside TU boundary with series of tool mark scars also visible.*

Surveyors next inspected an area east of identified CMTs which lies outside the TU harvesting boundary. An area of raised archaeological potential (AOP) was identified outside the prescription area (Map 2). There is a flat bench adjacent to two creeks and close to the beach (Map 2; Fig. 6). No midden was identified, but a historical hearth (cook rock) was identified next to a surface of vegetation. Age of this disturbance is at most 10 years. This disturbance, the proximity to the beach, proximity to two (2) freshwater streams and the presence of two (2) old kindling extractions CMTs nearby indicates that this area has likely been used for camping, and resource collection (shellfish, root and tubers, fishing, berries, etc.), recently, historically, and likely prior to 1846.



*Figure 6. AOP just northeast of the harvest boundary for the SQUIR TU, with flatter terrain. Ocean visible just to the right (east)*

**5.2 RECY (PIN1310840):** This TU harvesting area for the recycling development is approximately donut in shape and lies on the eastern shore of Cortes, near Squirrel Cove and is just west of SQUIR TU. The surveyors covered 100% of the TU in transects spaced 20 m apart. The tree canopy was primarily secondary growth western hemlock and Douglas fir with sporadic stands of white pine and old growth western red cedar which were negative for the presence of CMT scars (Fig. 7). The understory was composed of salal, huckleberry, sword fern, bracken fern. Landscape was highly disturbed as indicated by a makeshift road for probable refuse dumping site (Fig. 8). The terrain was generally composed of rocky knolls, rounded exposed bedrock, large, weathered boulders, and cobbles in much of the TU with minimal sedimentation, excluding the poorly draining area in the southeast corner and south boundary where water has accumulated. As this area rocky, has some poorly draining terrain, high disturbance, and was negative for CMT scars, it is of low concern and no further archaeological work is recommended.





*Figure 7-8. (L-R) View detailing the landscape, understory and canopy species present, rocky knolls and bedrock exposures visible also; photo of makeshift road with evidence of disturbance for refuse dumping.*

**5.3 CARR (PID 009-999-639):** The surveyors left the eastern RECY and SQUIR treatment units and drove to the last TU which lies on the west coast of Cortes Island in Coulter Bay. Treatment unit was previously disturbed during a harvesting event exactly 105 years prior. Flora in the forest canopy was primarily secondary growth western hemlock, Douglas Fir, and balsam with smaller amounts of Western Red Cedar. Understory was comprised mainly of salal, sword fern, and huckleberry (Fig. 9). Due to excellent ground visibility, surveyors were spaced in transects 30-50 m apart. The terrain throughout the CARR-TU is varied, but slope is generally ~15% throughout (Fig. 9). Small areas of the terrain in the south are flatter, whilst ravines, bluffs, small valleys, and steep ground are frequently encountered as one heads east. The study area has been historically logged and has constructed roads and trails throughout. Old growth hand logged stumps and trees were inspected for cultural modification, but poor preservation and degradation by the moist environment made identification of evidence of cultural modification inconclusive. This area did not present any areas of concern or potential for archaeological materials, and so further archaeological work is not recommended.





Figure 9. Photo showing terrain and forest floral composition.

**5.4 SUMMARY OF FIELDWORK:** In general, there is low potential for archaeological material within the three treatment units. However, two (2) Post-1846 Culturally Modified Trees (CMTs) (CMT No. 1 and CMT No. 2) and an area with flat topography and elevated archaeological potential (AOP 1) were positively identified above the beach immediately southeast of the SQUIR treatment unit (Map 2). Both CMTs were recorded on old growth western red cedar trees. The scars consisted of metal tool marks within an old scar window (between healing lobes). It was unclear whether the triangular bark scar windows were a result of anthropogenic activities or naturally caused. The tool marks, however, were clearly post-1846 culturally activity and appeared to have been reminiscent of kindling extraction. CMT No. 1 was located on a relatively steep bank on the north side of creek and CMT no 2 was located on south side of the same creek (Map 2). A site form is being compiled and will be sent to the BC Archaeology Branch to record the location of the CMTs. The CMTs will not be protected under confines of legislation and a *Heritage Conservation Act (1996)* permit for alteration will NOT be required to modify the tree as they are post 1846 scars, and therefore considered traditional use sites (TUS) and not archaeological sites.



An area of raised archaeological potential (AOP) was identified outside the prescription area (Map 2). There is a flat bench adjacent to two creeks and close to the beach (Map 2; Fig. 6). No midden was identified, but a historical hearth (cook rock) was identified next to a surface of vegetation. Age of this disturbance is at most 10 years. This disturbance, the proximity to the beach, proximity to two (2) freshwater streams and the presence of two (2) old kindling extractions CMTs nearby indicates that this area has likely been used for camping, and resource collection recently, historically, and likely prior to 1846.

As the RECY TU was primarily rocky with poorly draining terrain, high disturbance from refuse dumping and forestry development, and absence of CMTs, it is of low concern and no further archaeological work is recommended. In the CARR TU, old growth hand logged stumps and trees were inspected for cultural modification, but poor preservation and degradation by the moist environment made identification of evidence of cultural modification inconclusive. This area did not present any areas of concern or potential for archaeological materials, and so further archaeological work is not recommended.

## 6.0 RECOMMENDATIONS

No further archaeological work is recommended within the proposed harvesting boundaries; however, should ground disturbing forestry developments happen to expand into areas outside of the harvest boundary in the AOP located immediately adjacent to the surveyed unit SQUIR, it is recommended that further consultations with concerned First Nations continue and an Archaeological Impact Assessment (AIA) is conducted under a HCA Heritage Inspection Permit. An AIA can firmly determine the extent, nature, composition, and condition archaeological materials and features. These recommendations apply only to the surveyed area in the CARR, SQUIR and RECY treatment units and apply solely to physical archaeological evidence of past human activity. Furthermore, as two CMTs were identified, **consultation with affected First Nations is recommended to establish whether a protective buffer is required around these CMTs..**

Finally, all archaeological sites within the surveyed landscape, whether recorded or not, are protected from disturbance, whether intentional or inadvertent, by the *Heritage Conservation Act* (1996). It should be noted that even the most thorough archaeological survey may inadvertently fail to identify archaeological materials. Should unobserved archaeological materials be encountered during development activities within the TU boundaries, under the *Heritage Conservation Act (1996)*, development must cease. S12.4 site alteration permit and/or S12.2 impact assessment permit may be required prior to proceeding with activities.

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Walley, Meghan and Kenzie Jessome

2019 2019-0144: 2612 Patricia Crescent, Savary Island, Tla'amin and Hul'qumi'num Treaty Group Lands, Southwestern British Columbia.

## Traditional Use Survey



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Powell River, B.C., V8A 0C4  
**Phone:** 604 483 9646  
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**info@tn-bc.ca**

Thus, the purpose of this report was to identify any potential negative impacts on the Tla'amin Nation's and the Klahoose First Nation's Rights and Title. Based upon the Fieldworker's report we grant conditional approval noting that all Old Growth Management Areas must not be impacted by the proposed work.

As well, we request immediate notification should any archaeological evidence be encountered or ancestral remains be discovered.

Thank you.



Derek Kowalchuk

Archaeology Manager/Referrals Coordinator, Tla'amin Nation

