



SNIDCEL Resiliency Project

Annual Operating Plan 2021

Tod Inlet, Gowlland Tod Provincial Park

Partnership Agreement Holder: PEPÁKEN HÁUTW Food Systems Education Foundation
Partnership Number (with BCParks): PA2019-13
Operating Year: 2021
Date completed: Dec 16, 2020

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Submitted to BC Parks by:

Approved by BC Parks:

Judith Lyn Arney
Ecosystems Director
PEPÁKEN HÁUTW Foundation

Part 1: Partnership Engagement Summary

Name of Agreement Holder: PEPÁKEN HÁUTW Food Systems Education Foundation

Contract number: PA2019-13

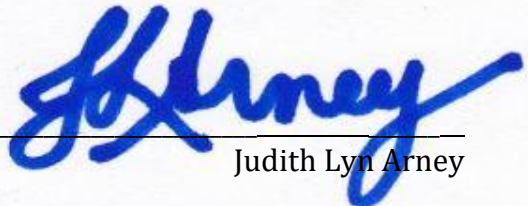
Date Form Completed: Dec 16 2020

For Calendar Year: 2021

Total number of individuals who performed Services during the calendar year under age 85 and not "employees" of your organization.	Total number of hours of Services performed by all the individuals.
0	875

I hereby confirm that the information contained in this Engagement Summary is true and correct as of the date this report was prepared.

Signed by an authorized representative of the Agreement Holder:



Judith Lyn Arney

Part 2: Key Personnel

Group Contacts:	Name	Position	Contact #
Main Contact	Judith Lyn Arney	PEPÁKĒN HÁUTW Ecosystems Director	██████████
Alternate	Sarah Jim	PEPÁKĒN HÁUTW Senior Crew	██████████
Alternate	PEPAKĪYE Cooper	PEPÁKĒN HÁUTW Programs Director	██████████

Key Personnel:	Duties / Responsibilities
Judith Lyn Arney	PEPÁKĒN HÁUTW - BC Parks coordination, SRP restoration planning, restoration, crew coordination, education
Sarah Jim	SRP restoration planning, restoration, education
PEPAKĪYE Cooper	PEPÁKĒN HÁUTW Program Director, restoration, education
Earl Claxton Jr	PEPÁKĒN HÁUTW Program Elder, education

Part 3: 2020 Work Summary

Our 2020 work plan was in many ways quite altered due to the covid19 pandemic. In March we cancelled all volunteer days and school programs and simplified our approach considerably. However, we were also able to accomplish a lot of our objectives!

Toolshed



We successfully built a toolshed in to replace the old SeaChange tool trailer we had been using for the past several years. After approval from the W̱SÁNEĆ Leadership Council and BC Parks, our contractor Nathan Gray began construction in late January and completed the project on March 15, 2020. The toolshed is incredibly functional, and beautiful! The toolshed easily holds all the tools required for our restoration work. Our safety protocols and work plans are posted inside for staff to easily and promptly access in case of emergency (see Part 6: Safety Plan).

Ecosystem Restoration

SNIDŹEŁ Resiliency Project: Restoration Work Plan 2020

	6A KSEČEN	6B QELAXEN	6C SPEPEŁKITE	7A STXALEM	7B STRAYE	7C KÁLEK	8A SEMSEMÍVE	8B SKIMEQ	10A WTEKTENEČ	10C XENXINELE	13 ÁLEN	11A APELENEČ	19 SMIET	WETLAND TEXTEX
JAN														
FEB	☠	☠	☠	☠	☠	🍎					☠	🍎	☠	🍎
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NOV	🌱	🌱	🌱	🌱	🌱	🌱		🌱			🌱		🌱	
DEC														

Fruit tree pruning 🍎	Invasive Species removal ☠	Mulching 🍎	Watering 💧	Planting 🌱
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* Debris removal April, July, November 🗑

For the most part our crew was able to complete the 2020 Restoration Work Plan as stated above. Some changes included doing more invasive species removal in the form of line trimming on the ecotone site (7C, 8A, 8B) in June rather than August, and we did a sweep of line trimming across site 6, 7 & 13 in July as well as May and June, and again in October. We had increased rainfall in the spring compared to previous years, which accelerated the plant growth on the sites and so the extra line trimming helped keep the invasive cover manageable. This increased rainfall also meant we did not need to water much in June, although we did set up a watering plan for July to mid-September for watering three times a week. We were also unable to mulch, either with decomposed bark mulch in the spring or leaf mulch in the autumn. Usually the task of mulching all the plants across our restoration sites is greatly supported by the larger work groups we host throughout the year. With only



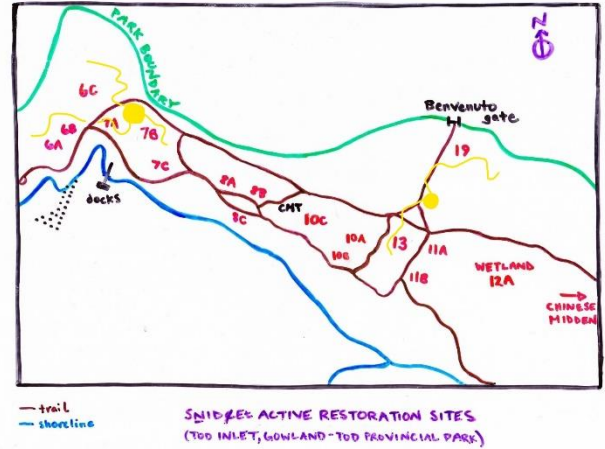
our crew this year, we did not have capacity to take on mulching. In November we did our annual plantings and flagged all new plant in red and blue flagging for a watering focus in 2021.

SNIDČEL Plantings November 2020

site	plantings
6b	pollinator bed: KEXMIN desert parsley, SKEX nodding onion, red columbine, seed mix
6c	1 ČEU,NEĽP cottonwood (large) ČEU,NEĽP cottonwood (mixed pots) 8 TĚÁ,EĽĆ maple (1 gal) 2 JSÁY douglas fir (1 gal) 10 SXELEIĽĆ willow (1 gal & 4") 4 NEČIM SXELEIĽĆ red osier dogwood (1 gal)
7a	8 TĚÁ,EĽĆ maple (1 gal) 5 SXELEIĽĆ willow (1 gal & 4") SKÉMÁYKS grand fir (mixed pots) ČEU,NEĽP cottonwood (mixed pots) TĚÁ,EĽĆ maple (mixed pots) 1 ELILEIĽĆ salmonberry (5 gal)
7b	8 TĚÁ,EĽĆ maple (1 gal) 5 SKOLNEĽĆ alder (1 gal) 5 SXELEIĽĆ willow (1 gal & 4") 2 KÁTEĽĆ oceanspray (1 gal)
7c	bank: 4 PEPKIYOS snowberry (1 gal) 3 WILWQIĽĆ red flowering currant (1 gal) 1 DEKENIĽĆ thimbleberry (1 gal)
8b	pollinator bed: KEXMIN desert parsley, SKEX nodding onion, red columbine, seed mix
13	9 SKOLNEĽĆ alder (1 gal) 4 PEPKIYOS snowberry (1 gal) 4 TĚÁ,EĽĆ maple (1 gal) 1 SXELEIĽĆ willow (1 gal) 4 NEČIM SXELEIĽĆ red osier dogwood (1 gal) 2 KÁTEĽĆ oceanspray (1 gal) 1 SENI,IĽĆ oregon grape (1 gal)
19	13 SFXÁLEM swordfern (1 gal) 4 TĚÁ,EĽĆ maple (1 gal) 2 KO,PEĽĆ devil's club (2 gal) XPÁY cedar (mixed pots) 1 SXELEIĽĆ willow (1 gal) 4 NEČIM SXELEIĽĆ red osier dogwood (1 gal)

Water Cistern and Watering System

In 2019 we were able to use a large truck to fill (from the large water cistern on site 7B) and cart around a watering tank to each site to do our watering. However this year we wanted the flexibility for any staff member to do the watering without the need of a heavy duty truck. So we devised a system that included the addition of a second smaller water cistern on site 19, and purchased extra lengths of hose and a gas powered water pump to get water to each site. The few corners that are out of reach from the hose were watered by hand with extra watering cans.



Part 4: 2021 Work Plan

Ecosystem Restoration

SNIDČEĚ Resiliency Project: Restoration Work Plan 2021

	6A KSEČEN	6B QELAXEN	6C SPEPELKITE	7A STXALEM	7B STKAYE	7C KÁLEK	8A SEMSEMÍVE	8B SKIMEQ	10A WTEKTENEČ	10C XENXINELE	13 ÁLEN	11A ADELENEČ	19 SMIET	WETLAND TEXTEX
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MAR	☠	☠	☠	☠	☠				🍎	🍎	☠	🍎	☠	🍎
APR	☠*	☠*	☠*	☠*	☠*	☠*					☠*	🍎	☠	
MAY	☠	☠	☠	☠	☠		☠	☠	☠	☠	☠	☠	☠	☠
JUNE	☠*	☠*	☠*	☠*	☠*			💧			☠*	🍎	☠	
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SEPT	☠	☠	☠	☠	☠	☠		💧			☠		☠	
OCT	☠*	☠*	☠*	☠*	☠*	☠*		☠			☠*		☠	
NOV	🌱	🌱	🌱	🌱	🌱	🌱	🍎	🌱			🌱		🌱	
DEC														

Fruit tree pruning 🍎	Invasive Species removal ☠ (* includes line trimming)	Mulching 🍎	Watering 💧	Planting 🌱
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* Debris removal April, July, November 🗑️

INVASIVE REMOVAL

From February to May/June and September to November, invasive removal will generally consist of digging out invasive plants with the objective of removing as much of the whole plant (including roots) as possible. Each site will receive comprehensive 'sweeps' where the most aggressive invasive plants and patches are removed first, with an emphasis on clearing invasives away from the planted species. This process is greatly accelerated by volunteer groups and classes as well as concentrated crew hours.

During the summer months (June/July to August), the main objective is to prevent invasive species from flowering and protect planted species from being overtaken by invasive plants. Often the soil becomes too dry to effectively remove roots in summer, therefore every attempt will be made to simply remove as much of the invasive plant as possible and generally clear each site of vigorous invasive growth.

MULCHING

SPRING & SUMMER

We intend to bring in approximately 25 yards of partially decomposed bark mulch (current source: MacNutt Ltd) in the spring to help suppress invasives from planted species. This mulch will be applied around planted species, ensuring the mulch does not touch or cover the stems of the plants. If it is possible to attain more mulch, a broader layer of bark mulch can be applied across each lower site to enrich these depleted soils. Ideally this work is completed through spring and summer so we can switch to leaf mulch in autumn.

AUTUMN

Leaf mulching is an important part of restoring the microbiota of each restoration site. Specifically alder and maple leaves can be raked up from the roadways around the inlet in autumn and gathered onto tarps, then spread out over sites as thickly as possible given the amount of leaves available. Priority will be given to the newer sites with the most exposed soil (6c, 7a, 7b, 10c, 13, 19); if there are more leaves available the remaining sites can also receive a mulch layer. If leaf mulch is limited, concentrate the leaf mulch around the planted species.

WATERING

We will continue to use our water system developed in 2020 (see Water Cistern & Watering System in 2020 Work Summary). Plants require watering for approximately 3 years after being planted on site. Although this is subject to annual weather conditions, generally watering begins in late May/early June and continues until early September. In cool spring or autumn conditions, watering can be done on all sites once or twice a week, while in warm summer months watering will be done on all sites three times a week.

FLAGS

All plants which will require water through the spring and summer of 2021 are flagged in blue and red ribbon. Blue flagging only indicates plants planted before 2020, many of which no longer require water but still need to be identified so they can be continuously kept clear of invasive species over the course of the year. Planted species that have grown tall enough to be seen above the dense invasive cover of spring and summer, and no longer require water, will have their flags removed.

DEBRIS REMOVAL

The most convenient method for debris removal is to contact Randy from the Metal Salvage place on West Saanich Rd (adjacent to the Tribal School) 250-880-0963. Piles are currently near the shoreline across from site 7a, by the switchback up top at site 7b, and by the Benvenuto gate on site 19. Debris removal ideally takes place after each spring, summer and autumn restoration season.

Sometimes metal, recycling, and garbage is found on the restoration sites (especially site 19) and will be taken away by crew annually and disposed of at the Hartland facility, metal salvage yard or by residential municipal pickup after transport to a pickup location.

NATIVE PLANT PROPAGATION

We will be developing a propagation plan for SNIDÇEŁ in January as we continue to add plants to the restoration sites. Cuttings will be done in the dormant season and seed collection through the summer and early autumn months. Native plants we propagate will be cared for at the PEPÁKĚN HÁUTW Native Plant Nursery until they are planted at SNIDÇEŁ.



Soil Remediation

This summer PEPÁKĚN HÁUTW staff were approached by the Compost Education Centre to consider the possibilities of doing soil remediation at SNIDÇEŁ, with the intention of ensuring the native plants growing at SNIDÇEŁ are safe to use as foods and medicines. Alexis Hogan, CEC Program Coordinator, came out to take some soil samples and discuss a potential plan for a low impact soil remediation strategy which can also offer educational opportunities for the WSÁNEĆ youth in our school programs as well as park visitors and volunteers. Alexis has summarized these plans as follows (Dec 3 2020):

The SNIDÇEŁ samples show low levels of contamination from 6B. I used the process that Danielle laid out for me, which was treating the plot like a grid and taking many samples from within that plot; I took samples from the grid in the shape of an X to cover as much area as possible within a reasonable amount of time. From there I mixed the samples together to homogenize them and then packaged up three from that homogenous mixture.

The report shows levels discretely above CCME guidelines for Arsenic and Zinc in site 6B. After some talking Danielle and I have come up with a slightly modified approach to the remediation pilot that I had been discussing with you.

For one, we would like to do more site research, especially testing at different sites at SNIDÇEŁ, before we choose which site to use with test plots. I requested more funds from the CEC's 2020 budget be reallocated to this project in order to pay for the soil testing and

the Board approved this request last Thursday evening. [REDACTED]

[REDACTED] With access to their prior research, I think we could more efficiently and cost-effectively focus on which other sites may express higher levels than what site 6B has demonstrated.

Danielle and I are happy to continue working with site 6B if this site demonstrates the highest levels within the map of SNIDZEL restoration plots. We suspect that due to the site's historic use to not only find low levels of contamination, like what 6B is expressing, but more moderate levels too. Over the course of HCS site sampling we have found residential sites with much higher levels of contamination, and employing our proposed low-tech remediation plans on both low to moderately contaminated sites would be very helpful in testing the hypothesis around native and non-native hyper accumulators and mycelial and microbial remediation treatments.

Danielle also proposed another brilliant idea as she began to pace and flesh out the trajectory of the first steps of the project. **She thought that it might be wise to use plants that are fast growing (I think that this has to do with hyper-accumulation) that are analogous to one another and use less types of plants than we were initially thinking. In essence, we should start with a narrow focus and grow outwards as our baseline understanding develops. For example, Danielle thought it would be wise if we are using a fast-growing native plant like coastal mugwort (*Artemisia suksdorfii*) as a native hyperaccumulator, that we should also use its non-native relative Mugwort (*Artemisia vulgaris*) and ALSO the more common/western edible cousin tarragon (*Artemisia dracunculus*) including common edibles to be able to more easily describe to our audiences what the uptake of metals is like in food bearing plants.** Other examples she pitched include: woolly sunflower, sunflower, Jerusalem artichoke; buckwheat / meadow barley / sorrel; and Indian mustard / field mustard / kale (I think it may be good to exclude this one as the potential for rampant self-seeding is high).

Along plants we are thinking about soil treatments. These are some of the treatments we are thinking of using:

- [1] Native plant (e.g. coastal mugwort)
- [2] Same native plant with AMF (arbuscular mycorrhizal fungi) inoculant
- [3] Non-native plant (mugwort)
- [4] Non-native plant with AMF inoculant (this will only work if we use non-brassicac)
- [5] Common edible crop
- [6] Edible crops with compost
- [7] Edible crops with mulch
- [8] Edible crops with AMF inoculant

Because we are thinking that we will focus on more soil testing now, we are planning for a spring install of plants. Judith, I know you were hesitant and skeptical about the success of sowing natives at that time --- what we are doing is sowing a range of natives now, from the list above, at the CEC that way we can (A) get the plants growing in the cold stratified ways that they love (B) ensure that they are growing in soil we know the current metal levels of (C) add ourselves an extra extra layer of security in terms of growing these native plants because Kristen says that they can also be sown in spring. We are not going to bank on the

fact that the seeds sewn now will be successful in germinating, but will plan to also buy/ have in-kind donated starts from Kristen for these plants for next early spring.

The thinking around the delayed install is that it will give us a bit more time to talk through all the nuanced bits and pieces of this developing plan with you guys and work on a clear MOU. It will also allow us to see if the pandemic chills out and if it's safer for Danielle to come help out in person; and most importantly it will provide more time for a well-considered, more seamless, coordinated install.

Planning for the install will not only mean testing more areas this December, and thus dialing in on the best spot or spots to do test plots but will also allow time to coordinate actually installing the plots with my colleague Chris Dufour. Chris is running a special program with the Artemis Secondary where they are working with a group of womxn and non-binary youth and young mothers and teaching them lots of professionally transferable skills around plants, ecology, compost and growing food through a program called Cultivating Reciprocity. With your express consent, I would love to invite Chris and their team of 10 young people to come and help us install & maybe even help me monitor the plot(s) and plant seeds and starts.

The install of the test plots will be a bit of work and maybe you'll have better suggestions or see problems with our proposal that we need to consider; Danielle has mapped it out and now we are sharing it for your review and feedback:

Steps for Preparing Experimental Plots

1. Mark out the plot area with a shovel or flagging tape.
2. Remove the grass/existing vegetation and break it up with shovel.
 - a. Set to side
 - b. transplant things that need to be moved
 - c. If there is concrete underneath, pick axe, and remove
3. Build lumber frame to install in plots (Sizing of these frames and their partitions are still TBD as we discuss the treatment plan. and seek your input. These plots could be multiple at approximately 12'x12' or singular but larger at around 24'x24')
 - a. create quadrants within the frame using wood partitions
4. Dig up soil to a depth of 1' in the marked plot area that has been broken up with a shovel
 - a. place to side being mindful of surrounding restoration work
5. Install the frame (at least 1 ft deep) and line it with stapled landscape fabric in order to keep the divisions separate
6. Refill each quadrant with excavated soil
 - a. Thoroughly homogenize the soil and mix
7. Take a soil sample from each treatment cell for testing
8. Add each treatment one by one (label/identify plots)
9. Remove debris from site
10. Install project signage

Ongoing Maintenance After Install (CEC crew in charge of this unless otherwise agreed to)

- Plots will need to be cared for as any normal garden: watered, weeded, etc

- Plots will need to be checked on to assess growth
- We will probably leave the plants to grow for 4-6 months after sowing
- Then we will harvest all the plant matter at once and take samples from it, disposing of the rest in our sealed containers for anaerobic decomposition
- Where will we do the anaerobic decomp? TBD
- We may need to re-sow after we see the test results from the soil (has it been cleaned?)

We look forward to working with the Compost Education Centre, with a likely focus on site 6B. We will include temporary signage that will inform the public about the project. There will be no soil disturbance beyond the introduction of new plants and beneficial mycorrhizae.

Student & Volunteer Groups

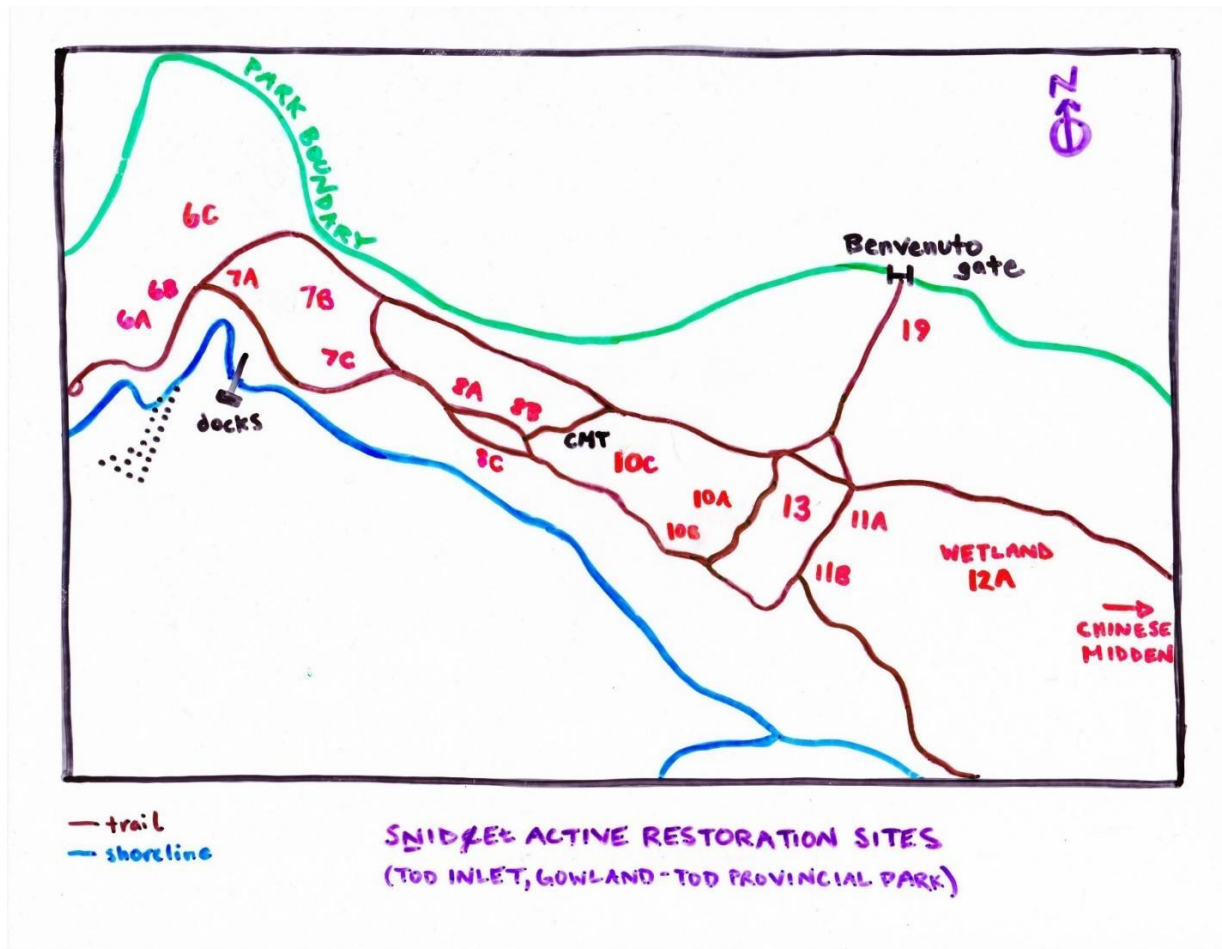
We plan to begin hosting student and volunteer groups to do ecosystem restoration at SNIDŪEĹ as soon as it is safe to do so. Over 2020 we have erred on the side of caution in terms of covid19 restrictions (see Part 6: Safety Plan), and will continue to do so. Students groups will include the WŚÁNEĆ Leadership Secondary School students as part of our PEPÁKĚN HÁUTW Program, Bayside Secondary School groups associated with the Creatures of Habitat Program (operated by Peninsula Streams Society), and various classes from the University of Victoria and Camosun College. PEPÁKĚN HÁUTW has been discussing protocols with UVic over the course of autumn 2020 which we hope will lead to regular classes returning each year at fixed times, so we can count on a certain amount of volunteer support. We also hope to restart our community volunteer days, with appropriate guidelines to limit numbers and ensure the safety of all participants.



Mural

There is a beautiful mural in progress at SNIDŪEĹ which will be a powerful visual symbol of WŚÁNEĆ presence in this special place. Two WŚÁNEĆ artists, Sarah Jim and Chaz Elliott, are designing the mural, located on the large concrete wall adjacent to the new beach on the eastern side (previously a boat ramp). This project is no longer a PEPÁKĚN HÁUTW project as described in the 2020 Annual Operating Plan, as former staff member Tiffany Joseph is leading this work independently in partnership with the Capital Regional District. For further information please contact [REDACTED].

Part 5: Restoration Site Descriptions



LOWER SITES

SITE 6A - KSEĆEN

Established 2006 by BCCC. This site requires ongoing clearing of invasives, especially in summer.

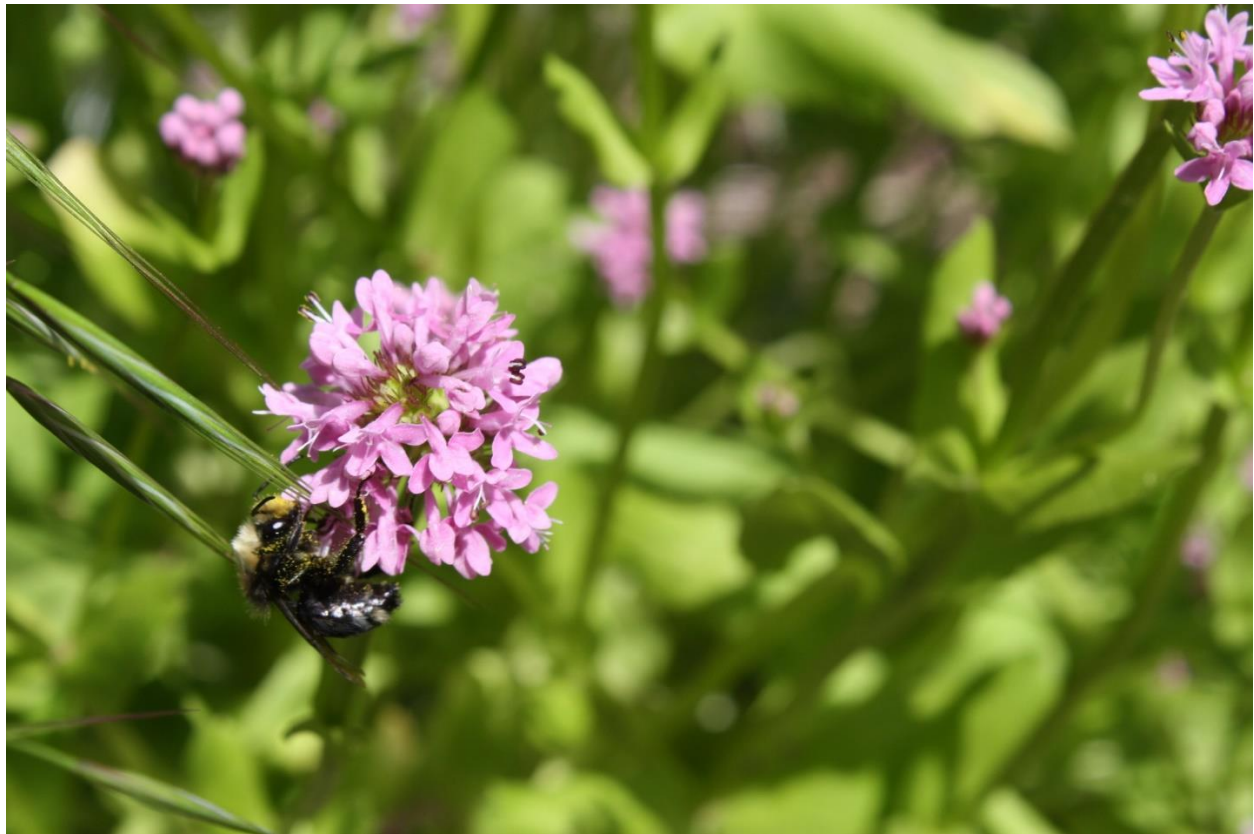
PLANTED	INVASIVE
Red-flowering currant <i>Ribes sanguinem</i>	Broad-leaved peavine <i>Lathyrus latifolius</i>
Tall Oregon-grape <i>Mahonia aquifolium</i>	Butterfly bush <i>Buddleia</i>
Bigleaf Maple <i>Acer macrophyllum</i>	Clematis <i>Clematis armandi</i>
Nootka rose <i>Rosa nutkana</i>	Grass spp.
Western redcedar <i>Thuja plicata</i>	
Douglas fir <i>Pseudotsuga menziesii</i>	
Black cottonwood <i>Populus balsamifera ssp. Trichocarpa</i>	
Oceanspray <i>Holodiscus discolor</i>	
Swordfern <i>Polystichum munitum</i>	
Evergreen huckleberry <i>Vaccinium ovatum</i>	

SITE 6B - QELAXEN

Established Feb 2011. This site was recently the dump site for the contaminated soil from the marine restoration project in Feb 2017. The open soil area was seeded with the seed mix provided by Saanich Native Plants; this area will need to be monitored for invasive sprouts to give the seed mix the best chance for a high rate of germination. There has also been a pollinator plant bed

planted at this site near the trail, marked by its border of rocks. This site is the proposed location of the soil remediation project initiated by the Compost Education Centre (details TBD).

PLANTED	INVASIVE
<p>Oceanspray <i>Holodiscus discolor</i> Thimbleberry <i>Rubus parviflorus</i> Arctic lupin <i>Lupinus arcticus</i> Yarrow <i>Achillea millefolium</i> Swordfern <i>Polystichum munitum</i> SNP seed mix (wildflower: yarrow, pearly everlasting, California brome, blue wildrye, fireweed, woolly sunflower, large-leaved avens, Canada goldenrod, Douglas' aster, graceful cinquefoil, great camas, self-heal) Pollinator bed: red columbine, KEXMIN, nodding onion, yarrow, seablush, spring gold, camas</p>	<p>Broad-leaved peavine <i>Lathyrus latifolius</i> Himalayan blackberry <i>Rubus discolor</i> Queen Anne's Lace <i>Daucus carotus</i> Butterfly bush <i>Buddleia</i> Clematis <i>Clematis sp.</i> Grass spp.</p>



SITE 6C – SPEPELKITE

Cleared by excavator Mar 2016. This site has an upper and lower section on either side of the mature cottonwood stand. The soil here is littered with cement chunks and some metal protruding from the ground so please take care when moving through this site. There are some very healthy willows at the back of the site which, together with the vigorous cottonwood, indicates a lot of moisture in the ground despite the craggy appearance of the soil here. This site must be

consistently cleared of invasives, especially in the summer months. We will be considering a planting plan for autumn 2020 to fill in gaps from the autumn 2018 plantings.

PLANTED	INVASIVE
Black cottonwood <i>Populus balsamifera ssp. Trichocarpa</i> Red osier dogwood <i>Cornus stolonifera</i> Douglas fir <i>Psuedotsuga menziesii</i> Oceanspray <i>Holodiscus discolor</i> Bigleaf maple <i>Acer macrophyllum</i> Red alder <i>Alnus rubra</i> Thimbleberry <i>Rubus parviflorus</i> Snowberry <i>Symphoricarpus albus</i> Swordfern <i>Polystichum munitum</i> Pacific willow <i>Salix lasiandra</i>	Himalayan blackberry <i>Rubus discolor</i> Broad-leaved peavine <i>Lathyrus latifolius</i> Butterfly bush <i>Buddleia sp.</i> Canada thistle <i>Cirsium arvense</i>

SITE 7A – STX/ALEM

Cleared by excavator Feb 2016. *Please note the presence of poison hemlock on this site*. Poison hemlock is extremely toxic when ingested; it is distinguished from Queen Anne’s lace by the purplish blotches on its stem. This plant must be removed wherever it is found especially before it goes to seed. The occurrence of poison hemlock is mostly near the foot bridge on the bottom section of the site and along the slope beside cottonwood grove. There are also lovely native horsetails (*Equisetum arvense*) growing in the section alongside the mature cottonwoods near the foot bridge. There is also clematis invasion near the top edge of the site (adjacent to the path).

PLANTED	INVASIVE
Black cottonwood <i>Populus balsamifera ssp. Trichocarpa</i> Red osier dogwood <i>Cornus stolonifera</i> Douglas fir <i>Psuedotsuga menziesii</i> Oceanspray <i>Holodiscus discolor</i> Red alder <i>Alnus rubra</i> Red flowering currant <i>Ribes sanguinem</i> Bigleaf maple <i>Acer macrophyllum</i> Western redcedar <i>Thuja plicata</i> Thimbleberry <i>Rubus parviflorus</i> Snowberry <i>Symphoricarpus albus</i> Blackcap raspberry <i>Ribes leucodermis</i> Salmonberry <i>Rubus spectabilis</i> Grand fir <i>Abies grandis</i>	Himalayan blackberry <i>Rubus discolor</i> Broad-leaved peavine <i>Lathyrus latifolius</i> Butterfly bush <i>Buddleia sp.</i> Clematis <i>Clematis sp.</i> Canada thistle <i>Cirsium arvense</i> Poison Hemlock <i>Conium maculatum</i>* Oxeye daisy <i>Leucanthemum vulgare</i>

***poisonous, handle with caution**

ECOTONE SITES

SITE 7B – STKAYE

Cleared by excavator Feb 2016. This site extends across the plateau of land above the docks and down the slope leading to the dock area. There is a lot of native trailing blackberry (*Rubus ursinus*) over by the slope towards the docks and spreading across the site which is nice, but will need to be pointed out to volunteer groups.

PLANTED	INVASIVE
Red osier dogwood <i>Cornus stolonifera</i> Douglas fir <i>Psuedotsuga menziesii</i> Oceanspray <i>Holodiscus discolor</i> Red alder <i>Alnus rubra</i> Red flowering currant <i>Ribes sanguinem</i> Bigleaf maple <i>Acer macrophyllum</i> Swordfern <i>Polystichum munitum</i> Snowberry <i>Symphoricarpus albus</i> Red flowering currant <i>Ribes sanguinem</i> Pollinator bed: mock orange, cottonwood	Himalayan blackberry <i>Rubus discolor</i> Broad-leaved peavine <i>Lathyrus latifolius</i> Butterfly bush <i>Buddleia sp.</i> Clematis <i>Clematis sp.</i> Canada thistle <i>Cirsium arvense</i> Oxeye daisy <i>Leucanthemum vulgare</i>

SITE 7C - KÁLEK

Established 2006 by BCCC. There were some meadow species planted before 2010 here, however the site is definitely an ecotone forest site. This site does not usually require much oversight, just sometimes planted species can be checked to make sure they are not being overwhelmed by invasive cover. The bank below this site, adjacent to the new mural site and between the roadway and the beach, is considered part of this site.

This site is also adjacent to the new toolshed location, to be built in January-February 2020. We may consider doing some plantings around the new toolshed in the autumn.

PLANTED	INVASIVE
Garry oak <i>Quercus garryana</i> (survival unlikely) Camas <i>Camassia spp.</i> Seablush <i>Plectritis congesta</i> Oceanspray <i>Holodiscus discolor</i> bank: snowberry <i>Symphoricarpus albus</i> red flowering currant <i>Ribes sanguinem</i> thimbleberry <i>Rubus parviflorus</i>	Broad-leaved peavine <i>Lathyrus latifolius</i> Teasle <i>Dipsacus sp.</i> Grass spp.

SITE 8A - SEMSEMÍYE

Established 2006 by BCCC. The back of this site is vulnerable to invasion and can be monitored and invasive species removed, especially around planted species. Morning glory is particularly vigorous here and will wrap its way up plants; please remove morning glory from plants as often as needed. There have been observations of active ground bee nests on this site in 2018 and 2019; please take good care when working around this section.

PLANTED	INVASIVE
Douglas fir <i>Psuedotsuga menziesii</i> Bigleaf maple <i>Acer macrophyllum</i> Red alder <i>Alnus rubra</i> Oceanspray <i>Holodiscus discolor</i> Western redcedar <i>Thuja plicata</i>	Himalayan blackberry <i>Rubus discolor</i> Broad-leaved peavine <i>Lathyrus latifolius</i> Morning glory <i>Convolvulus sepium</i> English bluebell <i>Hyacinthoides non-scripta</i> Common burdock <i>Arctium minus</i> Canada thistle <i>Cirsium arvense</i>

SITE 8B - SKIMEQ

Established 2006 by BCCC. This site is similar to 8a in that it requires little maintenance, however the back of the site in particular is still vulnerable to invasion. This site has expanded to include the cleared section on the other side of the path leading to the culturally modified trees (CMTs). This site can be kept clear of invasives especially around the planted species. Again morning glory is

really pernicious especially at the back of the site and should be removed as much as needed. There is a pollinator bed planted at this site which will require watering through the summer months.

PLANTED	INVASIVE
Tall Oregon-grape <i>Mahonia aquifolium</i> Red alder <i>Alnus rubra</i> Bigleaf maple <i>Acer macrophyllum</i> Douglas maple <i>Acer glabrum</i> Red-flowering currant <i>Ribes sanguinem</i> Baldhip rose <i>Rosa gymnocarpa</i> Hybrid rose <i>Rosa sp.</i> Oceanspray <i>Holodiscus discolor</i> Garry oak <i>Quercus garryana</i> Douglas fir <i>Psuedotsuga menziesii</i> Hairgrass <i>Deschampsia cespitosa</i> Gummy gooseberry <i>Ribeslacustre</i> Pollinator bed: red columbine, KEXMIN, nodding onion, yarrow, seablush, spring gold, camas	Tall Oregon-grape <i>Mahoniaaquifolium</i> Red alder <i>Alnusrubra</i> Bigleaf maple <i>Acer macrophyllum</i> Douglas maple <i>Acer glabrum</i> Red-flowering currant <i>Ribes sanguinem</i> Baldhip rose <i>Rosa gymnocarpa</i> Hybrid rose <i>Rosa sp.</i> Oceanspray <i>Holodiscus discolor</i> Garry oak <i>Quercus garryana</i> Douglas fir <i>Psuedotsuga menziesii</i> Hairgrass <i>Deschampsia cespitosa</i> Gummy gooseberry <i>Ribeslacustre</i>

Sites 8A & 8B are on either side of the iconic bigleaf maple we call “the Snoopy Tree”.



SITE 10A - WTEKTENEĆ

Established 2006 by BCCC. This site requires clearing invasive plants away from planted and volunteer native species. There is a good deal of Hardhack (*Spirea douglasii*) and fireweed (*Epilobium angustifolium*) on site, as well as trailing blackberry (*Rubus ursinus*). This site is one of few that has robust native species volunteering amongst the planted and invasive species so we encourage them wherever we can. This site could one day be developed into an interesting

interpretive site due to numerous cement features such as staircases and foundations, in a similar manner as site 13. The priority for this site is to keep the invasive cover down and away from the small planted species (mainly three swordfern), especially at the back of the site.

PLANTED	INVASIVE
Tall Oregon-grape <i>Mahonia aquifolium</i> Bigleaf maple <i>Acer macrophyllum</i> Indian plum <i>Oemleria cerasiformis</i> Red-flowering currant <i>Ribes sanguinem</i> Douglas fir <i>Pseudotsuga menziesii</i> Western redcedar <i>Thuja plicata</i> Swordfern <i>Polystichum munitum</i> Grand fir <i>Abies grandis</i> Oceanspray <i>Holodiscus discolor</i> Red alder <i>Alnus rubra</i>	Himalayan blackberry <i>Rubus discolor</i> Broad-leaved peavine <i>Lathyrus latifolius</i> Morning glory <i>Convolvulus sepium</i> English bluebell <i>Hyacinthoides non-scripta</i>

SITE 10C – XENXINELE

Cleared by excavator Feb 2016. This site was planted by WSÁNEĆ Leadership Secondary School students in April 2016 and April 2017. Due to its relative shade, the plants at this site are less vulnerable to drought than the more open sites. The priority at this site is the removal of invasives, especially around planted species; blackberry sprouts can be dug or cut just underneath the surface of the soil.

PLANTED	INVASIVE
Red alder <i>Alnusrubra</i> Indian plum <i>Oemleria cerasiformis</i> Red osier dogwood <i>Cornus stolonifera</i>	Himalayan blackberry <i>Rubus discolor</i> Broad-leaved peavine <i>Lathyrus latifolius</i> Morning glory <i>Convolvulus sepium</i> English bluebell <i>Hyacinthoides non-scripta</i>

SITE 11A – APEL,ENEĆ

Established 2006 by BCCC. This site borders the wetland area at SNIDZEL and has an interesting mix of native species with the old apple trees planted by the settler residents of Tod Village. This site requires very little maintenance but benefits greatly from at least one sweep of invasive removal per year. Note the planted blackcap raspberry on the trailside between the apple trees so it doesn't get lost.

PLANTED	INVASIVE
Red-flowering currant <i>Ribes sanguinem</i> Red osier dogwood <i>Cornus stolonifera</i> Red alder <i>Alnus rubra</i> Swordfern <i>Polystichum munitum</i> Nootka rose <i>Rosa nutkana</i> Douglas fir <i>Pseudotsuga menziesii</i> Western redcedar <i>Thuja plicata</i> Salmonberry <i>Rubus spectabilis</i> Trailing blackberry <i>Rubus ursinus</i>	Himalayan blackberry <i>Rubus discolor</i> Morning glory <i>Convolvulus sepium</i> Lemon balm <i>Melissa officianalis</i> Canada thistle <i>Cirsium arvense</i> Common hawthorn <i>Crataegus monogyna</i> Creeping buttercup <i>Ranunculus repens</i> Grass spp.

Blackcap raspberry <i>Rubus leucodermis</i>	
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SITE 13 – Á,LEN

Cleared by excavator April 2013. This site had previously been totally invaded by Himalayan blackberry, the removal of which uncovered a number of concrete foundations of former residences dating back to the cement plant era. There is also a LOT of thistle throughout the site that can be pulled regularly in order to keep it from flowering. The southwest corner of this site has a vigorous invasion of creeping St John’s wort that has been dug out and will be planted with red flowering currant and swordfern this autumn.

This site is also seeing natural regeneration of native species such as columbine (*Aquilegia acemos*), thimbleberry (*Rubus parviflorus*) and woodland violet (*Viola odorata*). Please take good care of these little volunteer native plants.

The priority of this site is the removal of invasives. The alder sections and inside the central foundations can be cleared with a blade trimmer, however the more densely planted areas with smaller planted species need to be cleared of invasives by hand.

PLANTED	INVASIVE
Western redcedar <i>Thuja plicata</i>	Himalayan blackberry <i>Rubus discolor</i>
Douglas fir <i>Pseudotsugamenziesii</i>	Broadleaved peavine <i>Lathyrus latifolia</i>
Salal <i>Gaultheria shallon</i>	Morning glory <i>Convolvulus sepium</i>
Trailing blackberry <i>Rubus ursinus</i>	Canada thistle <i>Cirsium arvense</i>
Red alder <i>Alnus rubra</i>	Lemon balm <i>Melissa officianalis</i>
Oceanspray <i>Holodiscus discolor</i>	English ivy <i>Hedera helix</i>
Swordfern <i>Polystichum munitum</i>	Creeping St. John’s Wort <i>Hypericum calycinum</i>
Gummy gooseberry <i>Ribes lacustre</i>	
Blackcap raspberry <i>Rubus occidentalis</i>	
Red flowering currant <i>Ribes sanguinem</i>	
Pacific willow <i>Salix lasiandra</i>	
Red osier dogwood <i>Cornus stolonifera</i>	
Oregon grape <i>Mahonia aquifolia</i>	
Snowberry <i>Symphoricarpus albus</i>	

MATURE FOREST SITES

SITE 19 - SMIET

Cleared by excavator December 2017. This site is our newest and largest site to date. Similar to site 13, there were numerous foundations of staff residences found on these sites underneath the invasive cover. There was also some evidence of squatter activity in the northeast section, and possibly a grow op in the eastern forested section (numerous garden pots, bags of soil and assorted debris was found as we cleared the area by hand).

The soils here are quite healthy and rich compared to some of the modified soils closer to the old industrial areas near the docks. Some of the site is extremely wet in the winter months and the most saturated areas were marked in blue flags in order to guide our planting plan for this site in autumn. We have already planted devil’s club in the deepest and most wet section of the site (autumn 2018). The hydrology of this site is affected by the old system of ceramic pipes leading

from the spring or associated waterways into the old residences from the cement plant and “Tod Inlet Village” era. We have endeavoured to track the hydrology here as best as we can given the unknown nature of this pipe system.

There are a lot of volunteer maples, oceanspray, thimbleberry, and trailing blackberry on this site, especially across the northmost section. It is great to point these ones out to volunteers.

The southwest corner of this site at the road junction has a lot of English ivy cover spreading into the forest. This ivy is a good section for invasive removal by the summer staff when time permits. There is also a lot of periwinkle near the gate.

This site is right on the edge of the actively restored areas at SNIDŽEĽ, ideally in the coming years we have the capacity to push the restoration efforts from this site eastward towards the last swath of major invasive cover at SNIDŽEĽ in the wetland section.



PLANTED	INVASIVE
Bigleaf maple <i>Acer macrophyllum</i> Red alder <i>Alnus rubra</i> Oceanspray <i>Holodiscus discolor</i> Snowberry <i>Symphoricarpus albus</i> Red elderberry <i>Sambucus racemose</i> Evergreen huckleberry <i>Vaccinium ovatum</i> Swordfern <i>Polystichum munitum</i> Devil's club <i>Oplopanax horridus</i> Red osier dogwood <i>Cornus stolonifera</i> Western redcedar <i>Thuja plicata</i>	Himalayan blackberry <i>Rubus discolor</i> Broadleaved peavine <i>Lathyrus latifolia</i> Morning glory <i>Convolvulus sepium</i> Canada thistle <i>Cirsium arvense</i> English ivy <i>Hedera helix</i> Creeping buttercup <i>Ranunculus repens</i> Periwinkle <i>Vinca minor</i>

Red flowering currant <i>Ribes sanguinem</i> Pacific ninebark <i>Physocarpus capitatus</i> SNP seed mix (forest: Dewey's sedge, Siberian miner's lettuce, blue wildrye, large-leaved avens, fringe-cup, self-heal)(on designated site near central cedar)	
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OTHER RESTORATION SITES

These restoration sites are included in this document because they are part of the landscape restoration plan at SNIDÇEL, though they are not as active as the other sites.

SITE 12A: Wetland - TEXTEX

There was a student project completed in December 2013 about the wetland northeast of site 13. The Creatures of Habitat program has also cleared a nice portion of the wetland area leaving an open space on its way to being populated by stinging nettle (*Urtica dioica*) going to seed on site.

We hope to build on the efforts in the wetland area on both sides of the trail; its related corridor ecosystem along the waterway (through sites 11a and 11b) is also of interest in our long term restoration efforts. This site could potentially be opened up as a major restoration area when funding and time permits.

Chinese Midden

The slope above the Chinese midden (as it connects to the main trail) has been cleared in April 2013 and 2014 by students in the Creature of Habitat program. In spring 2014 volunteers also planted swordfern on this site in order to prevent slope erosion and stabilize the bank. In spring 2015 the site was also planted with about 25 young salal (*Gaultheria shallon*) by Green Teams and SeaChange volunteers. This area is named the 'Chinese Midden' as removal of invasive species from this site inevitably unearths many artifacts from these workers' lives such as bottles and old boots. Some of these artifacts can be seen where they have been stacked along the lower walking trails running beside WEĆEĆE (Tod Creek).

The Beach - SÁSU

After the significant marine restoration work, we have begun to consider plants that would thrive along the shoreline. We have planted two SLE,QÁI (dunegrass or *Leymus mollis*) between some of the driftwood and the cottonwood stand and it seems to be doing well. We would like to plant more of this in the future as well as other suitable shoreline plants. SeaChange did some plantings of entire leaved gumweed (*Grindelia stricta*) with a school group in November 2019. In November 2020, our staff planted 3 flats of KEXMIN (*Lomatium nudicaule*) behind the driftwood border between the main beach and the cottonwood stand. We hope these succeed and the SÁSU becomes a thriving ecosystem once more.



Part 6: Safety Plan

- A. Emergency Protocols (Appendix I) and Safety Orientation (see Appendix II)
- Shared with all staff prior to each working season and posted in the staff toolshed for quick reference. Shared with all volunteers prior to any volunteer event
 - Additional Information: site work at SNIDZEEL will be cancelled in the event of high winds or any extreme weather deemed high risk
- B. Public Safety Considerations
- Additional Information: all key personnel are notified by phone when there is a public safety concern
- C. Closures (trails or areas of a park): all key personnel are notified by phone or email by BC Parks
- D. Accident and Emergency Management
- A First Aid Kit and a person with a current First Aid certification will be present at all projects and events.
 - At least one person will have a cell phone or radio and an emergency contact list at all projects and events.
- E. COVID 19 Protocols (Appendix III): to be in effect for the duration of the pandemic

EMERGENCY CONTACTS	
Police / Fire/ Ambulance Emergency	911
BC Hydro (Emergencies)	1-888-769-3766
RAPP (Report All Poachers and Polluters)	1-877-952-7277
Report a Forest Fire	1-800-663-5555
Air or Marine Emergency	1-800-567-5111
Poison Control Centre	1-800-567-8911
Nearest Hospital: Saanich Peninsula Hospital	1-250-544-7676
Non-Emergency Contacts	
BC Parks Staff: Christine Rikley	██████████
Park Facility Operator: RLC Park Services	1-250-474-1336
Local RCMP Detachment:	1-250-652-4441

Part 7: Proposed Additional Contractors

Name	Contact Information	Project	Experience
Compost Education Centre (Alexis Hogan & Danielle Stevenson)	office@compost.bc.ca	Soil Remediation	8 years soil remediation



Appendix I: Emergency Protocols



EMERGENCY PROTOCOL

for

SNIDÇEL

(Tod Inlet, Gowlland Tod Provincial Park, BC)

In case of MINOR INJURY (injuries that can be treated by the First Aid person or, if further medical attention such as stitches or x-ray is needed, do not require an ambulance):

1. Stop work and observe tool safety
2. Notify First Aid person
3. Provide First Aid and document the injury

In case of SERIOUS INJURY (any injury that requires ambulance services):

1. Call 911
2. Notify First Aid Person

3. Send someone to the Benvenuto gate to meet ambulance
Assure entry of ambulance and provide guidance to the location of injured person/people
4. Support administration of emergency first aid until
Emergency Services arrive

IN CASE OF FIRE:

1. Call 911
2. Send someone to the Benvenuto gate (or nearest safe location) to meet Emergency Services vehicles. Assure entry of emergency vehicles and provide guidance to the location of fire or any injured people
3. Notify as many people in the area as possible
4. Evacuate the area

Safety is our first priority!
Anyone who sees anything unsafe has a responsibility to correct the hazard if possible and report the hazard or incident to staff and appropriate authorities such as 911 or the Coast Guard. Tsartlip First Nation and BC Parks must also be notified if necessary.

Appendix II - Safety Orientation Checklist

SAFETY ORIENTATION CHECKLIST	
Project: SNIDZEŁ Resiliency Project	
Location: SNIDZEŁ (Tod Inlet, Gowlland Tod Provincial Park)	
Date: Click here to enter a date	
---- Discuss with all volunteers before work begins ----	✓
Project Leader:	
First Aiders:	
Location of First Aid Kit:	
Cell phone service:	
Weather:	
Emergency vehicle access:	
Location of and quickest route to the nearest hospital:	
Check in / check out procedure:	
Working alone procedure: Buddy system	
Appropriate clothing and footwear for terrain, tools and weather:	
Any injuries must be reported to BC Parks on the day of their occurrence	
Right to refuse unsafe work	
Hand tools in good working order	
Review safe use of hand tools	
Public Safety Concerns and Closures:	
Identify hazards, possibilities, solutions	

Appendix III: COVID 19 Protocols



PEPÁKEN HÁUTW Foundation
pepakenhautw.com

PEPÁKEN HÁUTW Food Systems Education Foundation COVID-19 Protocols DECEMBER 2020

This document outlines the various protocols we have established as an organization to protect and support our staff as well as the wider community during the COVID-19 pandemic. We will also fully comply with protocols established by the WŚÁNEĆ School Board when on school grounds. All protocols will be reevaluated on a regular basis as conditions evolve.

SAFETY PROTOCOLS

PEPÁKEN HÁUTW Nursery

- all staff members who enter the work site must keep at least 2 metres from others and always wash or sanitize their hands before and after touching shared surfaces (gates, locks, faucets, tools)
- each staff member must wash their hands thoroughly (20 second minimum) or use hand sanitizer prior to entering the work site and touching shared surfaces
- staff members must limit numbers of people present at PEPÁKEN HÁUTW (5 people maximum)
- staff who begin to feel unwell and are experiencing a cough, fever and difficulty breathing must notify their coworkers immediately and self-isolate for 14 days
- staff who are experiencing symptoms of the common cold, flu or COVID-19 and/or have been in contact with someone who is sick will not be permitted to enter the work site
- staff who are in contact with individuals who are not practicing social distancing rules will not be permitted to enter the work site

SNIDŹEŁ

- all rules outlined in the above section regarding the PEPÁKEN HÁUTW Nursery are also in effect for staff entering SNIDŹEŁ, with the exception of the maximum number of people allowed on site (SNIDŹEŁ is a publicly accessible location)
- volunteer day protocols will be created when volunteer days commence, in accordance with current public health orders

Appendix IV: Volunteer Check in / Check out

VOLUNTEER CHECK IN / CHECK OUT				
Project: SNIDŪEŁ Resiliency Project				Date:
Name	Cell number	Check In (Initial)	Check Out (Initial)	Volunteer Hours
Total Volunteer Hours				0

