

## QUESTIONS RE: ROBERTS BAY SALT MARSH RESTORATION

### ***Executive Summary***

We are expressing our concerns and those of our neighbours regarding the Peninsula Streams and Shoreline Society (PSS) proposed “Mermaid Creek Salt Marsh Restoration” project. While we agree that preservation of the salt marsh at the mouth of Mermaid Creek (and located in Roberts Bay) is a worthwhile endeavour, we have many questions, detailed below, regarding the proposed southeast expansion. This expansion of scope to include the creation of a new southeast salt marsh where none has previously existed, without the benefit of a credible public consultation process and a construction timeline that precludes the opportunity for the public to understand and comment on the project’s benefits, risks and impacts have led us to request consideration of the following alternative. *We request that PSS limit the project scope at this time to Phase 1, as outlined in the report of DHI Water and Environment Inc. As noted in this report, a two-phase approach would provide data from the first phase to address refinements to the structure and size of any second-phase expansion.*

*Note→ We have heard this request and addressed it at the open house. Phasing was only included in the report at the request of project partners so there was an option, it was not a recommendation from DHI. This option has been deemed unsuitable from an environmental, budgetary, and adaptive management perspective. Importantly, a single phase considerably decreases the disturbance.*

We have attached a list of the questions which have originated from our neighbourhood discussions. We have chosen to submit these questions directly as they are extensive and would feel they would consume too much of any allocated question time at the open house scheduled for April 5th. Please feel free to share them with the participants of that meeting if you wish.

We are not environmental scientists, hydrologists or engineers but do believe that these questions are valid when assessing this project.

Hopefully these can all be answered either through the engineering report or the submissions that Peninsula Streams plans to submit to the approving agencies.

We remain in favour of preservation efforts of the Roberts Bay / Mermaid Creek salt marsh and look forward to your responses.

### ***Questions re Submissions and Approvals:***

From PSS website, we note:

“This work will be permitted by all relevant Federal, Regional and Local regulatory bodies including a project review from the Department of Fisheries and Oceans, a permit for crown tenure through the Nature Based Shoreline Protection, review from Transport Canada and the Canadian Wildlife Service. Archaeological surveys will be completed and any relevant permits acquired under the Heritage Act. Infaunal surveys have been completed by project biologists as well as an environmental impact assessment as part of this process. All proposed and required mitigations will be followed strictly with biological monitors onsite during construction. This includes inspections for leaks, biodegradable

lubricants and hydraulics, and all necessary spill kits and plans. Permissions have also been granted from the Tseycum Nation as well as the Town of Sidney.”

Question:

When and how will the PSS submissions be available to the public?

Included in FAQ's but no answer given in presentation slides.

Notification of project reviewal submissions will be posted on the project website. We will make documents publicly available as appropriate and with permission from the regulatory body in question.

Question:

Will the accelerated timeline for the project start allow adequate time for the preparation and submission of material to the approving agencies by other interested parties?

Included in FAQ's but no answer given in presentation slides.

The timeline is not accelerated. It has been selected to occur within the project near water timing windows and within the non-migratory and winter waterfowl period of the Roberts Bay-Shoal Harbour Migratory Bird Sanctuary. It allows us to effectively use specified project funds within the grant period – which included the development of a concept that will effectively enhance and protect the salt marsh. These funds were awarded in Spring 2022 and we have been planning since then with project engineers to develop a concept which was released to the public after revisions were made. There is an urgency in that the marsh is rapidly eroding and the longer we wait the more we lose. There is also a risk that if we wait too long there will not be anything left worth saving.

Question:

Would you provide contact or file managers for each of your submissions to which other interested parties may make submissions?

We can inquire with the regulatory officers and bodies how questions and concerns regarding a file should be made and make this information publicly available.

***Questions re Public Consultation:***

Question:

When will the McElhanney engineering report be available to the public?

The report will be made publicly available following an internal review and meeting between project partners about the design and report feedback, if necessary to McElhanney. The release of the report to project partners is still pending due to a delay in geotechnical scanning.

Question:

Will PSS make public their consultation logs for consultations held prior to the project announcement via door hangers of March 24<sup>th</sup>, 2023. This was the first public notification of which we are aware.

Below is a list of public events held since early 2022 regarding this project.

#### February 9, 2022 – Blue Carbon Report Findings and Next Steps Webinar

- An open-invite webinar shared across multiple social media platforms and through the Roberts Bay Residents Community Association Mailing List. Discussed the active erosion of the Mermaid Delta and the next steps towards securing funding to restore the lower and upper marsh of Mermaid Creek. Recording is available on our YouTube channel.

#### June 28, 2022 – Resilient Shores Webinar

- Fliers were distributed to the Roberts Bay and Tsehum Harbour neighborhoods outlining this event. Discussed climate change threats (sea level rise and increased storm surges), forage fish habitats, and impacts of armouring. Provided preliminary concept for restoration of the Mermaid Creek Delta, including a concept like that which was delivered by DHI.
- Webinar was an open invite and shared on PSS, SeaChange, and the Pacific Salmon Foundation Social Media accounts, plus distributed through the Roberts Bay Community Association Mailing List. Recording is available on our YouTube channel and Website.

#### October 15, 2022 – Bufflehead Day

- PSS restoration coordinator toured the restoration site and concept with participants of the event, including members of the community and council members.

#### February 15, 2023 – Regular Council Meeting

- PSS restoration coordinator presented the project and concept to council members and community members in attendance. Council offered support and approval for the project. The presentation was shared out as part of the agenda package and a session recording is available on the town's website. Published in the Peninsula News Review.

#### March 8, 2023 – Radio Sidney Interview

- PSS restoration coordinator discussed the project on Radio Sidney. Interview available on the project site page on the PSS website.

#### March 22, 2023 – Site Engagement

- PSS restoration coordinator met with Fifth Street residents to engage and answer project questions.

#### March 24, 2023 – Brochure Delivery

- 300 brochures were distributed throughout the Roberts Bay community. It outlines the project, provides contact information, links to the website and past reports & communication, and invitation to open house events.

#### April 4, 2023 – Beach Access Signage

- Signage with a QR code was posted at the end of all major public beach access roads that highlight past and planned works with links to more information.

#### April 5, 2023 – Shoal Centre In-Person Open House

- A presentation around the project by PSS, DHI, and SeaChange with a Q&A session for attendees. Slide deck available on project site page and event was advertised in the local paper.

May 6, 2023 – In-Person Site Event

- Planned an event for community members to visit the site with the project engineer and PSS restoration coordinator. Included will be a separate meeting period for Fifth Street residents that reside on the project sites' access street.

Question:

Do the public consultations planned by PSS both in formats and timing prior to construction follow the best practices for consultation of the funding agencies and meet all approving agencies guidelines?

Our aim is to have project transparency with multiple engagement and information sessions – such as webinars, site tours, open houses, and project information on the website. We have been actively engaging with Tseycum First Nations and have partnered with the Tseycum Marine Stewardship on the project. We are working hard to effectively engage with rights and title holders and with Town of Sidney residents about this project to the best of our ability.

***Questions re Environmental Assessments / Impacts:***

Question:

What levels of blue carbon sequestration will result from the restoration/expansion of the salt marsh?

Slide 17 shows a carbon capture increase of between 97.2 and 136.4 based on an increase in size of .38 hectare based on the cited study. This is for a “low marsh” The same study shows a  $217 \pm 60$  Mg C/ha for seagrass (low elevation/high salinity), we were told that the plantings were to be seagrass.

Can you clarify this and explain the disparity in carbon capture rates from that cited below?

Research indicates that carbon capture for salt marshes occurs at a rate of .54 tons per hectare per year. This project is estimated to be between 4000 to 6000 sq metres or approximately .5 of a hectare which indicates a carbon capture rate of .27 tons per year.

[\[https://www.frontiersin.org/articles/10.3389/fmars.2020.00403/full\]](https://www.frontiersin.org/articles/10.3389/fmars.2020.00403/full)

We used carbon capture values and storage capacity values for blue carbon ecosystems by utilizing blue carbon research from the Pacific Northwest, which contains similar vegetation to our project site. It is more valuable to reference blue carbon studies from a similar region versus other geographical regions (e.g., Australia). Carbon stock values provided within these more localized studies can be used to determine the potential low and high carbon storage capacity within the different blue carbon habitat systems according to their areal extent. The additional carbon storage capacity of the restored area can be determined using the carbon stock values and restored areal extent. Therefore, we expect a potential increase in the upper marsh carbon storage capacity by 10.1 to 12 Mg C and a potential increase of 131.9 to 185.1 Mg C in the lower marsh with the understanding that variability exists within and between sites on the west coast.

What is total carbon capture in tons expected over the life of the project?

Restoration of the lower marsh is expected to increase the areal extent of the marsh to 0.48 ha. If the rock bluffs provide protection to the lower marsh and if minimal loss from erosion occurs over the life of the project, then it's expected to have a potential carbon storage range of 166.6 Mg C to 233.8 Mg C within the lower marsh. Again this is with the caveat that variability exists within and between sites on the west coast.

What is this equivalent carbon capture on a per capita basis?

Using your slide and the highest value of carbon capture what is the carbon capture on a per capita basis?

In 2019, Canada was the highest GHG emitting country per capita among the top 10 emitting countries with 19.6 t CO<sub>2</sub>

eq. [<https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/global-greenhouse-gas-emissions.html>]

Calculating carbon capture on a per capita basis is not typically done for a singular salt marsh restoration project, particularly not on a national scale. It would not be a useful way to measure impact or success of this particular project.

Question:

What are the estimated carbon emissions in tons associated over the course of this project (considering quarrying of materials, transportation, and spreading of materials?)

[estimated 7000 tons of material needed with average load of a dump truck = to 14 tons = 500 trucks]

Beach nourishment material volume has decreased from the initially estimated amount as the design has been further refined from site studies, so the required number of truckloads will have declined. The majority of travel of materials will be done by barge which is one of the most carbon-efficient modes of transportation of materials. However a full supply chain analysis of carbon impacts from mine to beach has not been completed, largely because it is not a project requirement and because there are still logistical details that are being refined which would impact any calculations.

What level of storm surge protection will result from the project?

This project is designed to reduce the shear stress effects being experienced by the salt marsh, which is resulting in the outer edge of the marsh being eroded and to expand the size of the salt marsh through planting of glasswort/pickleweed, *Sarcocornia pacifica*. The small rock crescent headland features are designed to reduce wave energy that is shifting material around the marsh causing erosion of the outer edge. Storm surge events will still be prevalent due to climate change and larger tidal events. However, marsh plants also attenuate wave energy through frictional drag. The additional planting of glasswort, *Sarcocornia pacifica*, provides further opportunities of wave energy attenuation from storms as the waves move onto the lower marsh. The degree of attenuation from a salt marsh can vary greatly but wave heights are known to experience decreases as waves move onshore across a marsh, which was observed in a salt marsh with closely related vegetation in San Francisco Bay (Foster-Martinez et al. 2018).

Has mapping of expected - improved inundation effects been done as related to the CRD report below?

<https://www.crd.bc.ca/about/data/climate-change/coastal-flood-inundation-mapping-project>

No, because the focus of the restoration project is on habitat enhancement of a degraded salt marsh that has been impacted by sedimentation imbalance due to upland development and climatic impacts, increased storm surges resulting in erosion. Salt marshes are vital coastal habitats that provide foraging and nursery opportunities but can also provide a nature-based solution to climate change through carbon sequestration and storage and attenuate wave energy. However, the CRD report was designed to help local governments and other regional partners of the CRD to better plan for coastal flooding.

Question:

What effect, if any, will the project have on Sea Level Rise [SLR] without an associated storm surge?

This project will likely have no effect on the global sea level rise, which will still be a threat to coastal habitats in Roberts Bay and other coastal regions in BC. Presently, the Roberts Bay Mermaid Creek salt marsh is a carbon source releasing historically stored carbon due to the loss of the salt marsh, which contributes to greenhouse gases (GHG). Restoration of the upper and lower salt marsh and protection of the lower marsh will help to shift the marsh from being a carbon source, which contributes to climate change to a carbon sink that will sequester and store carbon within the marsh. Adaptive management through nourishment of this site will provide the necessary space for the marsh to shift around with sea level rise.

Question:

Why were photos and information from the period of recovery [1999 to 2005] left out of the publicly distributed brochure? It states, "Over 50% of Mermaid Creek's salt marsh has been lost since 1960 with the pace of this loss increasing dramatically since 2005."

The DHI report states:

"Notably, by 1999, the salt marsh extent was reduced by approximately 42 % compared to 1964. Much of this loss appears to be through burial of the marsh from sediments, rather than recession of the leading edge of the marsh. By 2005, the marsh had almost entirely recovered. Over the next two decades, however, the marsh extent reduced significantly. By 2022, approximately 58 % of the marsh area had been lost. The loss appears to be a result of both burial and erosion of the leading edge. It can be concluded that the marsh experiences annual variations in its extent. Partial burial of the marsh is visible in many of the airphotos, but appears to be transient in nature without resulting in permanent loss of the salt marsh. However, there also appears to be chronic erosion along the leading edge of the salt marsh, which is resulting in a long-term trend of salt marsh loss. The salt marsh extent should not be expected to fully recover without intervention and erosion protection measures."

(42803806\_ShoalHarbour\_Report\_v03\_FINAL.docx / JWIL / 29-Nov-2022 18)

The brochure provides a QR code to allow for recipients to be able to access complete project information on the Peninsula Streams & Shoreline website. The Mermaid Creek Salt Marsh restoration page includes the 1999 and 2005 aerial images that shows the marsh has recovered in size between that period. It also provides access to the report that discusses the current and historic conditions of Roberts Bay. Unfortunately, no orthophoto and satellite imagery where the estuary was visible existed between 1999 and 2005. Explanation for the period of recovery and then the further decline to the salt marsh is

explained in the CORI summary report, which is available to the public on the site. DHI references the CORI report in their report, which provides site background and details for the DHI design report.

Question:

The Town of Sidney has diverted \$25,000 from Mermaid Creek stormwater management funding to PSS. What were the details of the stormwater management project funded and planned by the Town of Sidney that is now being replaced by the PSS project?

What are the incremental stormwater management benefits expected over the original project?

Details for the stormwater management project live with Sidney Engineering but our understanding was there were plans to hire a consultant through RFP to review the Mermaid Creek Catchment and create a stormwater management plan with recommendations. This was developed by Council following a presentation by Peninsula Streams highlighting the erosion of the upper marsh. A copy of this presentation can be made available. The specific details of the Mermaid Creek Stormwater Management can be located within the council minutes on the Towns website.

Salt marshes can be negatively impacted by pollutants, but they also act as a buffer to the marine environment for non-point source pollution that enters stormwater systems, so the enhancement of this lower marsh provides a great areal extent of the marsh as a buffer that effectively reduces pollutants that would likely end up in the coastal food web. It will also create greater awareness around the Mermaid Creek Catchment.

Question:

How will current Town of Sidney outfalls be affected?

No outfalls will be impacted by the shifting of funds to the restoration project. The initial understanding of the funds was for the Town to better understand the stormwater flow into Mermaid Creek Catchment and the associated estuary, plus determine potential locations for 'non-point source' pollution to enter outfalls (see previous response above).

***Questions re Project impact on Wildlife, Recreational users, and Residents:***

Question:

How does this project comply with the Environmental Guidelines for Urban and Rural Land Development in British Columbia concerning Great Blue Herons?

These guidelines state:

- Blasting or similarly excessive noises should not occur closer than 1000 m from a colony during the nesting window.
- Time construction carefully. Avoid any new disturbance between January 15 and September 15 when herons are nesting.  
<https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/best-management-practices/develop-with-care/fact-sheet-11-herons.pdf>

We will be utilizing the various federal and provincial best management practices and applying any specific guidance provided with our project approvals. Prior to the project, we worked to identify nests of raptors and great blue herons that might exist within the vicinity of the project site and will integrate the best management guidelines for the different project operations. Roberts Bay-Shoal Harbour Migratory Sanctuary mudflats were identified as a foraging area for great blue herons; thus, enhancement of the salt marsh will improve natural shoreline habitat for them – which has been identified as regions to be protected in the best management practices. We are proposing minimum buffers of 260 m to be established for the heron nest (not a colony) and a minimum 200 m buffer from the eagle nest. Again this is a proposal to be considered by both the province and Canadian Wildlife Service.

Question:

Great Blue Herons are protected from hunting and molestation by the Migratory Birds Convention Act, Migratory Bird Regulations, and the British Columbia Wildlife Act. How does this project address those provisions?

Utilization of the best management practices during the project will prevent the disturbance of great blue herons. This restoration project provides benefits to the feeding area and shoreline habitat of great blue herons.

What other species live within the project environment and surrounding area and has PSS collected baseline data on those that may be affected by this project?

Peninsula Streams & Shorelines undertakes forage fish monitoring for surf smelt and Pacific sand lance occurs in this region, but spawning detections are predominantly outside of the project footprint and no spawning events occur within the SE portion of the bay in the summer. More than 40 species of marine birds are regularly observed in the Roberts Bay – Shoal Harbour Migratory Bird Sanctuary, with more than 40 species of passerine (perching birds) located in the uplands. A list of the main bird species in the Shoal Harbour Migratory Bird Sanctuary can be located [here](#). This region supports a rich diversity of seabirds, shorebirds, and waterfowl during migration and through winter. Project activities are outside of the migratory and winter window of the Sanctuary and enhancement of the marsh and shoreline habitat will improve foraging habitat for marine birds and waterfowl, including the provincially listed great blue heron. An infaunal survey was conducted by the project team in the project footprint identified minimal bivalves and the identified bivalves were invasive or introduced species.

Question:

Will the marsh and berms act as collection points for debris brought in by winter storms (e.g., old docks, Styrofoam, logs etc.)?

Enhancement of the marsh will unlikely shift the current debris patterns that exist within Roberts Bay from winter storms. Peninsula Streams & Shorelines volunteers participate in shoreline cleanups, so material being washed ashore will be removed in a similar manner through beach cleanup programs.

Question:

What impact will the project have on recreational kayaks utilizing the designated kayak launch site on Fifth Street both during and after construction?



Access to the beach via Fifth Street by the public, including recreational kayakers to use the designated kayak launch site during the construction activities will be maintained as much as possible, but temporary closures are expected. After construction, this area can continue to be used as a kayak launch. However, the beach nourishment material of the lower marsh will result in an improved gradual incline to the water versus the current entry angles experienced presently. Spacing between the constructed rock crescent headlands facilitates smooth access at lower tides.

Question:

What if any sandy beach areas will remain after project completion for the enjoyment of recreational users and their families? Will these be mapped out on engineering documents?

Beach nourishment around the project site will enhance and increase the soft sediments sites within Roberts Bay. These areas will be identifiable in engineered plans.

Question:

Will there be an increase in saltwater mosquitoes? If so, how will they be controlled?

We are unsure if an increase in saltwater mosquitoes will occur. However, the gap in the rock berm structures allows for water drainage to occur from the salt marsh. There will be potential for drainage channels to be introduced into the marsh to prevent standing pools of water on the marsh. Standing water will be easy to determine following the winter season at the site and adaptive decisions can be made about drainage channels. We can also work with local community groups to construct and install bat and swallow boxes to enhance conditions for these natural control species.

Question:

What will be the hours and days of week allocated for construction?

Operations will be commenced in accordance with local noise bylaws for the region.

Question:

Will construction only take place at low tides, regardless of time of day that they occur?

Operations will be commenced in accordance with local noise bylaws for the region. Majority of the low tide windows within the work period identified for the project occur during daylight hours and will be used opportunistically.

Question:

Will the beaches be closed to the public during the construction?

A traffic management plan will be developed. The areas around construction will experience temporary closures where necessary to maintain a high level of public safety. Flaggers will be commissioned to be onsite to ensure public accessibility is optimal.

Question:

What provision is being made for beach walkers to transit Mermaid Creek once construction is complete?

Large flat stones will be planted informally to enhance connectivity across the creek for pedestrians.

Thank you for your consideration and responses.

Thank you for your well thought out questions, and concerns, and for your obvious shared care for Roberts Bay.

### **Follow up to Open House on Roberts Bay Salt marsh expansion - email**

After feedback from those who attended the meeting and having had the opportunity to go through the slide deck, I thought I would update you on our observations.

The slide deck and the feedback that I have received from those who did attend the presentation have raised some additional questions, and it seems that many of our original questions remain unanswered.

These additional questions are listed [below](#), and the unanswered questions are highlighted in [blue](#) in the attached document.

We hope these will be helpful in your preparation of a written response to our submitted questions.

: It was stated that the engineering technique planned for this project has been used extensively in North America to achieve the shoreline changes intended for this project.

This is contrary to what you stated when we met earlier that such a project had not been attempted in such a “high energy” area before.

[Question: Can you provide the locations where these high-energy projects have been built and the outcomes?](#)

This project design will be utilizing a novel restoration technique for the west coast of North America but is an engineering technique that has been used extensively and successfully around eastern coastal regions of North America. Maine, Delaware, Virginia and North Carolina have utilized rock bluffs/rock sills as a living shoreline technique to protect salt marshes. Here is a [link](#) that showcases the research and practical examples of structural living shorelines featuring rock sills from the Virginia Institute of Marine Science. It has numerous photographic examples of sill and forms of breakwaters and how they have been used to protect shorelines and their habitats, including salt marshes. The Occohannock on the Bay Camp and Retreat Center in Accomack County, Virginia – utilized a similarly designed project to protect an eroding shoreline marsh. Five years post construction demonstrates that the marsh has filled in and oysters have begun to use the rock sills as habitat and the backshore has been colonized by trees. This example and other examples of living shoreline designs that utilize rock sills are located [here](#). Another living shoreline project that features rock sills happened in Mahone Bay, Nova Scotia. Here is the [link](#) to a CBC news article that showcases a similarly designed project off Nova Scotia, but this site developed a marsh to utilize the ecosystem services that marshes provide (e.g., wave attenuation to reduce coastal flooding).

For some more local examples of saltmarsh restoration projects see

Port of Vancouver Initiatives

<https://www.portvancouver.com/about-us/stories/balance/#>

Raincoast Initiative

<https://www.raincoast.org/connectivity/>

Duck's Unlimited

<https://www.ducks.ca/places/british-columbia/sturgeon-bank-pilot-project/>

It is important to note that every project is in some way 'novel' with its own set of unique challenges. However, there is a growing body of research and practice to draw on in order to best inform design. The Army Corps of Engineers, in particular, has a large portfolio of projects though, largely beach nourishment, that helps to inform the design and practice.

: We understand that during the presentation it was stated that there would be a reduction in loads from 7000 to 4000 tons.

Questions: What is being reduced and where physically will it take place, (NW / SE ) or is it the overall depth / area that will be affected?

What will this mean to the number of truck loads being delivered? Estimate would be from 500 to 285 is this correct.

Is PSS planning to add the reduced quantity of fill to Roberts Bay later? Will these 3000 tons mean another project for the summer of 2024?

The DHI technical memo provided a concept with estimates for material needs but largely focused on wave conditions and shear stress modeling. Marsh nourishment material volume has decreased from this initially estimated amount as the design has been further refined from site studies including geotechnical elevational scanning. This means the required number of truckloads will decline because less nourishment material will need to be delivered to the site. Though certainly a relief to our budget, it did not play a part in this decision. No, we do not plan on adding an additional 3,000 tons of material at a later period. We will be monitoring the movement and settlement of the sediment during the winter to allow for coastal processes to occur at the site. It will allow us to determine if anything unexpected occurred during the winter and be able to adaptively manage it prior to the spring planting of the marsh and backshore beach areas.

: Slide 24 F.A.Q's

Question: what are the answers to these frequently asked questions?

These questions were the same as those asked in the above longer letter - which has been addressed and our responses to your questions will be made available on the website.

: Slides 27/28

Question: What is the significance of slides 27 and 28? Are these alternative proposed structures for the project? If so, why were they discarded?

These slides are extra slides that were included for Jessica Wilson (and others) to reference in discussing how DHI arrived at their concept as well as some existing different site conditions. DHI highlighted the spectrum of shoreline protection approaches (some of which are evident on the beach) and their suitability for marsh restoration. The alternative concepts provided were not able to effectively minimize the wave energy sufficiently based on shear stress modeling while providing sufficient drainage and connectivity. Essentially the headland features proposed provide a happy medium between a continuous sill that would not be resilient and a boulder field which wouldn't provide sufficient protection. The photos demonstrate the active erosion and deposition areas, failed vertical sills/groynes, and the somewhat effective boulder fields.

: The timing of the project has been linked to the "away" time of both fish and fowl.

Question: Does this meet the Environmental Guidelines for Urban and Rural Land Development in British Columbia concerning Great Blue Herons?

We will be utilizing the various federal and provincial best management practices and applying any specific guidance provided with our project approvals. Importantly, we have included the eagle and great blue heron nests that exist within the vicinity of the project site and will integrate the best management guidelines for the different project operations including BC's Develop with Care Guidelines 2014. Roberts Bay-Shoal Harbour Migratory Sanctuary mudflats were identified as a foraging area for great blue herons; thus enhancement of the salt marsh will improve natural shoreline habitat for them – which has been identified as regions to be protected in the best management practices. It will be up to the regulatory officials including Canadian Wildlife Service to determine if our mitigations/best practices are sufficient to move forward.

We understand that another Roberts Bay resident with many years of experience moving gravel, digging foundations and a detailed knowledge of the challenges in trucking in the material for the project has been included in the planning process.

Question: Will you share his recommendations with us or publicly?

We have met with who you may be referring to onsite as well as a number of residents with a history in the bay. They were able to provide valuable photographs and anecdotal insight and site history into the dynamics and the large changes that have been brought to the bay.

Additional Roberts Bay Resident Comments & Questions:

Peninsula Streams & Shorelines has been speaking to the concern of the Roberts Bay Mermaid Creek Salt Marsh and next steps since early 2022 through publicly available webinars. Peninsula Streams & Shorelines utilized our social media accounts and tapped into the publicly accessible Roberts Bay Resident Association email list. We have been actively engaging with Tseycum First Nations and have

partnered with the Tseycum Marine Stewardship on the project. We are working hard to effectively engage with rights and title holders and with Town of Sidney residents about this project to the best of our ability. Our aim is to have project transparency with multiple engagement and information sessions – such as the webinars, site tours, open houses, and project information on the website.

#### Reason for Sediment Reduction in the Project

Refinement of the project has occurred during the design phase, which changes material needs and requirements. Therefore, as the design was refined it was determined that less sediment was required to get the gradient required for planting of the marsh. This allows us to focus funds on other aspects of the project, such as adaptive management of the site following a winter season.

#### Why not do the project in two phases?

When we initially engaged with DHI we asked them to provide a phased option (it was not an engineering recommendation). Since then we have determined that the environmental impacts and costs of doing a phased approach are too high. It is more advantageous to build the project, observe, and provide adaptive maintenance as a whole. If we phase it that means two large construction windows over two summers. We may learn a little in the first phase but we would also be changing the system again in the second phase. It is better to install the project as a whole, see how it works as a whole, and then provide adaptive measures as a whole. These funds for the restoration of the upper and lower marsh were awarded in Spring 2022 and we have been planning since then with project engineers to develop a concept, which was released to the public after revisions were made. There is an urgency in that the lower marsh is rapidly eroding and the longer we wait the more we lose. There is also a risk that if we wait too long there will not be anything left worth saving.

#### In the winter, will the berm thing collect all the junk that washes into the bay?

The enhancement of the marsh will unlikely shift the current debris patterns that exist within Roberts Bay from winter storms. Peninsula Streams & Shorelines volunteers participate in shoreline cleanups, so material being washed ashore will be removed in a similar manner through beach cleanup programs. The attenuating rock headlands will be dynamic, they will accumulate life and materials that will help to naturalize them. Their interstitial spaces will provide niche space and habitat complexity for different species.

#### How will the berms affect people learning to kayak?

These berms will not impact the launching of kayaks in Roberts Bay. Therefore, people learning to kayak will still be able to launch into Roberts Bay to learn how to paddle kayaks within Roberts Bay.

#### Will there still be a fifth street beach?

Beach nourishment around the project site will enhance and increase the soft sediments sites within Roberts Bay including the 5th st. beach.