



# SEASPAN VANCOUVER DRYDOCK WATER LOT PROJECT

Public Engagement Consideration Report

February 22, 2023



## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	3
CONSIDERATION OF COMMUNITY INPUT .....	3
A COLLABORATIVE PROCESS.....	4
KEY THEMES.....	5
CONSIDERATION TABLE.....	12
DRYDOCK SITING, VIEWS, SHADING AND OVERALL SITE .....	14
NOISE.....	18
AIR QUALITY.....	22
LAND USE AND ZONING.....	25
PUBLIC ENGAGEMENT PROCESS AND REGULATORY OVERSIGHT .....	28
MARINE HABITAT, SPILL PREVENTION AND EMERGENCY RESPONSE.....	31
LIGHTING .....	36
CONSTRUCTION.....	39
COMMUNITY AND COMMUNICATIONS.....	43
TRAFFIC.....	46

MITIGATION TABLE (Provided in a separate volume)

APPENDICES (Provided in separate volumes)

APPENDIX A – PART 1: 2021 COMMUNITY FEEDBACK

APPENDIX A – PART 2: 2021 COMMUNITY FEEDBACK

APPENDIX B: 2022 COMMUNITY FEEDBACK

APPENDIX C: 2022 COMMUNITY SURVEY FEEDBACK

APPENDIX D: 2022 COMMUNITY SURVEY FEEDBACK DATA

## EXECUTIVE SUMMARY

As part of its effort to optimize operations and better meet the needs of marine customers on Canada's west coast, in spring 2021 Seaspan submitted a Project & Environmental Review (PER) permit application for Vancouver Drydock to the Vancouver Fraser Port Authority (port authority) to:

- Shift the existing careen floating drydock approximately 40m south, away from the shoreline.
- Install a 100m floating drydock, a 55m floating drydock and a 110m work pontoon, in addition to installing six support pilings and moorings to secure the docks in place.
- Extend the water lot west by approximately 40m (an additional 12,778m<sup>2</sup>), which is consistent with the existing terms of Seaspan's lease agreement with the port authority.

Seaspan led public engagement on the proposed project in July and August 2021. Based on that feedback, the Vancouver Drydock team developed several mitigations to address concerns raised by the public. In late 2021, the port authority requested additional technical data along with supplemental engagement focused on gathering input on Seaspan's proposed project mitigations.

A report on the 2021 public engagement is available on Seaspan's project website ([www.drydockprojects.com](http://www.drydockprojects.com)) and the port authority website (<https://www.portvancouver.com/permitting-and-reviews/per/project-and-environment-review-applicant/status-of-permit-applications/seaspan-vancouver-drydock-water-lot-expansion/>). An Engagement Summary report for the 2022 supplemental public engagement accompanies this report in a separate volume.

## CONSIDERATION OF COMMUNITY INPUT

This report provides Seaspan's comprehensive response to feedback received from the public. From the outset of its Project and Environmental Review (PER) permit application, Seaspan has worked to anticipate concerns, listen to feedback from the community and adapt the project scope, where possible.

Prior to submitting the PER application, Seaspan completed several technical assessments and studies to understand what impact the proposed new drydocks and work pontoon may have on the environment and nearby communities, in and around the site. Seaspan identified topics of interest, including views & shading, marine habitat, lighting, noise, air quality, construction, traffic and emergency response.

During the public engagement activities in 2021 and 2022, Seaspan requested and received feedback on these and other topics of interest to the community. This feedback has allowed Seaspan to both understand community concerns and to respond to these concerns, as best as possible given the constraints of Vancouver Drydock’s existing site and industrial nature of drydock operations.

Seaspan recognized that while some may not support the project, it was critical to hear from and fully consider the input of all voices.

Seaspan approached the engagement activities with respectful dialogue, with clear facts about the scope and potential impacts of the project. Through this process, Seaspan has gained a greater appreciation for the unique qualities that both enrich and challenge the Shipyards District, a neighbourhood within which the interface between industrial, commercial and residential uses is closer than ever before.

As such, despite efforts to anticipate the challenges the interface could create and manage through those concerns through building covenants and acoustical design investments, the potential for friction along the interface remains high – especially given that the Port of Vancouver is a dynamic and ever-changing operating environment.

**A COLLABORATIVE PROCESS**

As outlined in the graphic below the process of revising and refining proposed project mitigations, from pre-application dialogue with the port authority and municipal officials through to the community survey in summer 2022, has been iterative. Seaspan has carefully considered all the comments provided through all of the feedback channels and this is reflected in the proposed project mitigations. Equally important, Seaspan believes it is important to be transparent about where mitigations to address concerns are not feasible, whether from a technical, financial, or environmental perspective.



## KEY THEMES

In reviewing the community feedback, Seaspan has compiled comments into the themes below. The themes are listed based on Seaspan's understanding of the level of interest / priority for the community based on the feedback received in the 2021 and 2022 public engagement activities:

#	Theme	Main Comment Areas 2021 and 2022
1	Drydock Siting, Views and Shading / Overall Site*	Siting the drydocks to the east of existing operations and to the east of existing water lot; view impacts from public pier; shift operations to Seaspan's Pemberton Ave or Victoria site; cease operations in current location and relocate to another location in the Port of Vancouver or another coastal area; property values; general condition of the existing site; visual improvements to the drydocks.
2	Noise	Increase in overall noise levels; accuracy of noise modeling study; lack of consultation with nearby residents; noise at night; barriers to deflect noise; post-project noise assessment.
3	Air Quality	Release of volatile organic compounds (VOCs) during operations; dust from operations on nearby spaces, including residential balconies; air quality monitoring; impact on children at nearby playground.
4	Land Use and Zoning	City of North Vancouver zoning; port authority lease terms and Land Use Plan; impacts on other drydock operators; residential encroachment, area is not aligned with active gentrification; Spirit Trail infrastructure.
5	Public Engagement Process / Regulatory Oversight	Insufficient 2021 public comment period; timing of public engagement activities; not all individuals received communications; commentary within the 2021 public engagement summary report; post-project oversight regulators; due diligence by port authority; insufficient public engagement overall; conflict of interest with Seaspan supporting port/ City initiatives during PER process.
6	Marine Habitat, Spill Prevention & Emergency Response	Concern about interference with marine wildlife; potential for oil spills; water from operations entering the ocean; spill prevention and emergency response plans.
7	Lighting	Disruption to nearby residents; light pollution; assumptions and methodology, accuracy and credibility of the lighting study; nighttime lighting requirements.

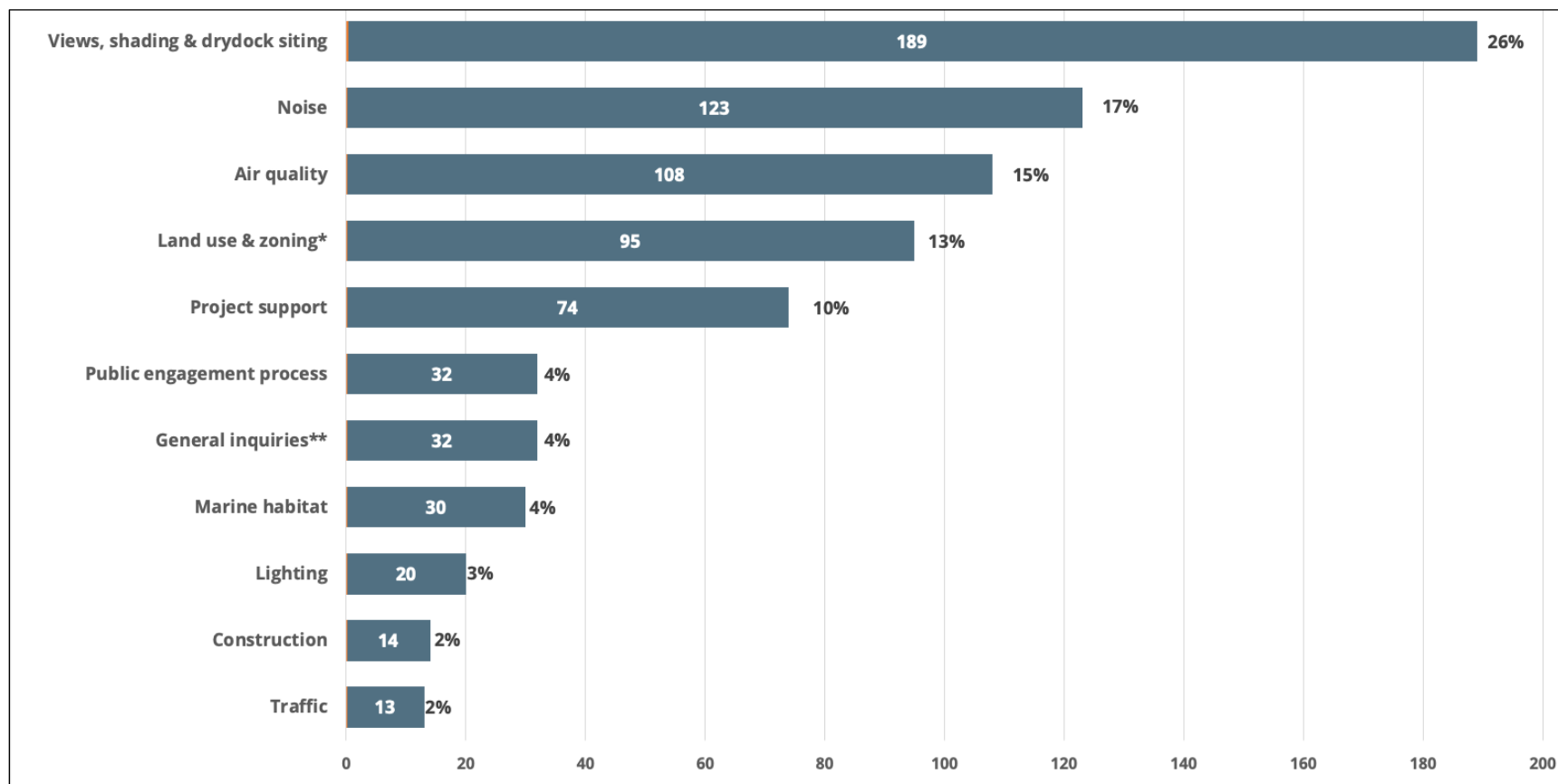
\* In the 2021 public engagement activities, siting and views and shading were grouped together within the feedback form. In 2022, the feedback focused on siting and the overall site. As a result, these themes are listed together.

#	Theme	Main Comment Areas 2021 and 2022
8	Construction	Negative effect of pile driving on nearby residential building foundations; noise levels during construction; disruption and increased marine traffic affecting marine and aviary wildlife; hours of construction.
9	Community and Communications	Activities within the Shipyards District; community amenities; increased opportunities for community dialogue; apprenticeships and scholarships; opportunities for site access.
10	Project Support	Active working shipyard contributes to neighbourhood character; interesting views; provides good jobs and continued economic growth; made-in-BC shipbuilding; appreciation for the working harbour.
11	Traffic	Increase in vehicle traffic on three-way intersection at Victory Ship Way/St. Georges Avenue/East Esplanade; need for a traffic study; alternative site access; alternative Burrard Inlet crossings.
12	General Inquiries	Including meeting start times; location of specific website information; acknowledgement of previous communications.

## 2021 PUBLIC ENGAGEMENT

The chart below shows the level of interest for each theme – the number of comments for each theme (the number within the bar chart) and corresponding percentage of the total overall comments received in 2021 (the number at the end of bar). Of note, some comments included multiple topics and this is reflected in the cumulative number of comments on each topic.

**2021 Comment Themes**



\*Including comments on the port authority Land Use Plan; City of North Vancouver zoning, and Shipyards District approved activities.

\*\*Including inquiries on meeting start times, location of website information, acknowledgement of previous communication.

While many of the comments received during the 2021 public engagement period were related to the proposed water lot project, approximately one-third of the comments were outside of the scope of the Project and Environmental Review (PER) application. This includes such things as existing operations; port authority Land Use Plan; Shipyards District zoning (which is the regulatory responsibility of the City of North Vancouver); and air quality (which is the regulatory responsibility of Metro Vancouver).

Comments in the 2022 engagement period were more focused, as the scope of the supplemental public engagement was to receive feedback on Seaspan's proposed project mitigations so that they could be further refined for Seaspan's final proposal.

## **2022 PUBLIC ENGAGEMENT**

As described in the Engagement Summary report, the majority of the feedback in 2022 was via the community survey with additional feedback provided by email, phone and written submission. The intent of the community survey was primarily to solicit feedback on Seaspan's proposed mitigations, as a result, the verbatim comments were primarily related to mitigations. Key feedback themes that were provided in the 2022 public engagement included:

- A desire for Seaspan to initiate mitigations as soon as possible;
- Opportunities for greater citizen dialogue with Seaspan through working groups, tours and events;
- Vancouver Drydock site condition and clean-up;
- Investing more in the community;
- A call for greater regulatory oversight once projects are approved; and,
- Feedback on Seaspan existing operations (noise, light and air quality).

While the port authority was available throughout the public engagement process to provide information on the PER process, in reviewing the 2022 survey verbatim comments and 2022 email feedback, there appeared to be some confusion about the PER process. In some cases, there was a misunderstanding that Seaspan was trying to change the use designation of the water lot. Additionally, only upon reviewing survey comments did it become apparent that some individuals believed Seaspan's permit application had been 'rejected' by the port authority, and as such, were frustrated that Seaspan's 'new' application was similar to the 2021 scope.

Consistent with the 2021 public engagement, the level of support for each group of mitigations and the project overall was directly tied to where an individual resides. In 2021, many people self-identified their place of residence within their written feedback, and this was also the case in 2022.



Additionally, within the community survey, participants were asked to provide the first three digits of their postal code, which allowed the survey researcher to delineate those who reside in closest proximity to Vancouver Drydock (identified as 'core area') from those who live elsewhere in North Vancouver or beyond.

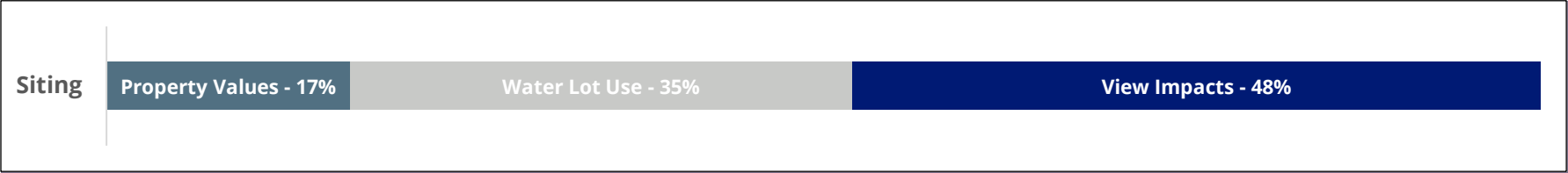
Overall, community assessment of mitigation effectiveness ranged from 31% (siting) to 44% (lighting). When considering the location of survey participants, those in closest proximity to Vancouver Drydock (core area) indicated mitigation support of 21 to 33% and those in the surrounding North Vancouver areas indicated support of 61 to 72%.

<b>Overall Effectiveness of Proposed Mitigations (% Supportive)</b>			
	<b>All</b>	<b>Core Area</b>	<b>Surrounding</b>
Lighting	44	33	72
Construction	41	28	61
Marine habitat, spill prevention & emergency response	40	30	68
Noise	36	24	70
Air quality	35	25	68
Drydock siting	31	21	61

Within the 2022 email and voicemail feedback, as was the case in 2021, drydock siting was the primary issue, the majority of individuals who wrote an email did not support the proposed siting of the drydocks. However, in many cases, individuals provided explanations for those concerns.

The explanations were very helpful for Seaspan, as it allowed for targeted refinement of the mitigations. For example, noise appears to be the primary concern for the proposed siting, as a result, while the noise study indicated that a notable increase in noise from the proposed project is not anticipated, Seaspan recognizes this is a concern for the community and has proposed a number of mitigations to help address existing operational and potential future noise levels, where possible.

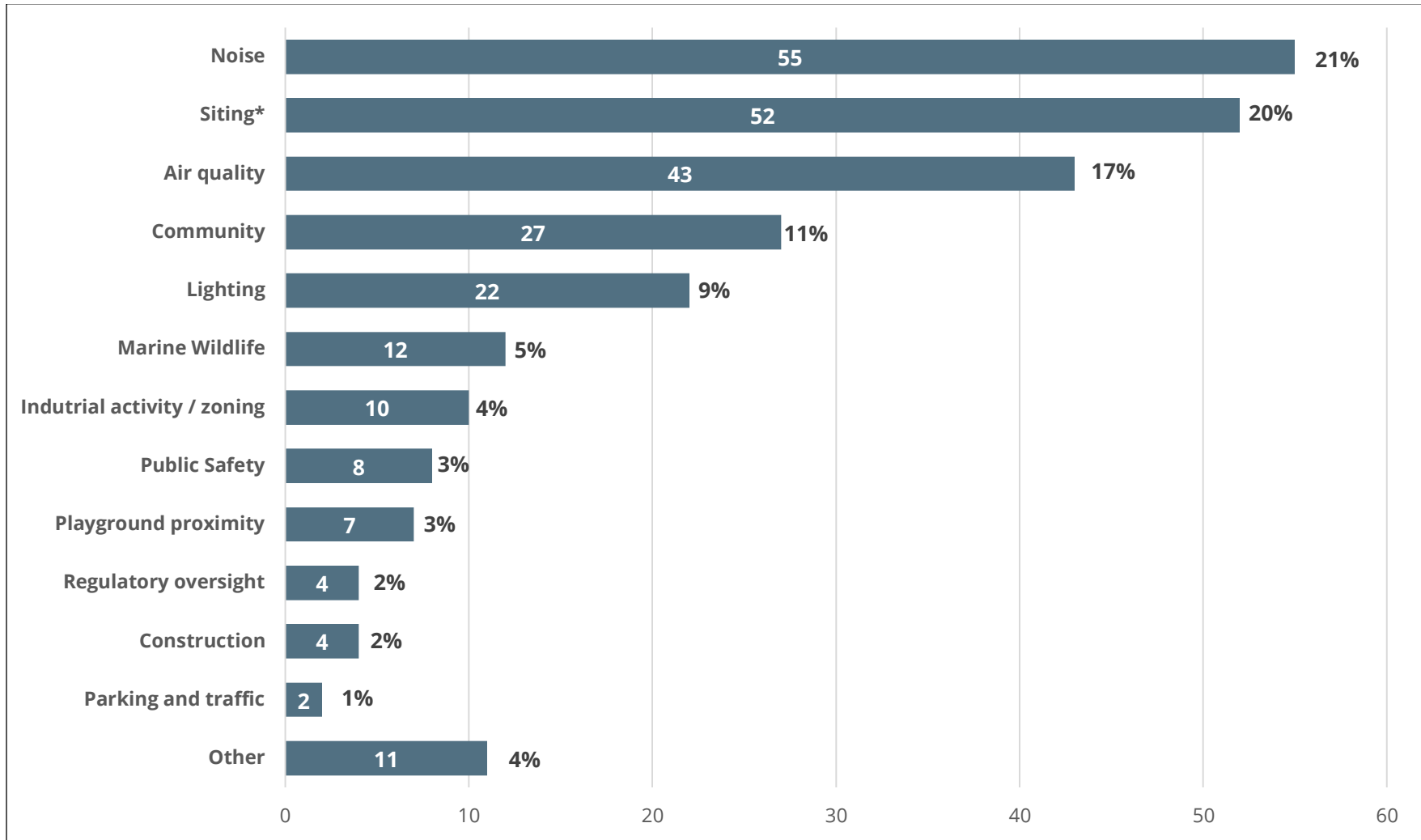
When reviewing the feedback, many individuals indicated a desire for Seaspan to position the new proposed drydocks to the east in the adjacent water lot. While Seaspan worked to explain why this is not possible, this feedback continued. As noted in the chart below siting comment themes were on view impacts (from the Shipyards District and from residential buildings), water lot use (public pier access, use of the existing water lot, adjustments to the Careen drydock), and property values. Other themes that arose included public safety (although that was not clearly defined) and proximity of residential-zoned areas to port industrial areas.



Two new themes also emerged in the 2022 supplemental public engagement, categorized as community and communications. Community includes such things as potential impacts on the Shipyards District as a whole, Seaspan community investments, and the ability to continue to use, play and enjoy the area. Communications centres around a desire for Seaspan to be more closely linked to the community – whether through tours, events or a working group. These have been included in the 2022 themes table.

The chart below shows the topics of interest, which is the explanation provided for why an individual has concerns about the proposed project. The number of comments for each theme is listed within the bar chart and the corresponding percentage of the total overall comments received in 2022 is the number at the end of bar. Some comments included multiple topics and this is reflected in the cumulative number of comments on each topic. Notably, when an individual provided an explanation for their concerns, siting was not the number one concern. Rather, concerns about noise were greater with the combined water lot use, view impacts and property values a close second.

### 2022 Comment Themes



\*Including comments on the views, water lot use and property values.

## CONSIDERATION TABLE

Appreciating and fully hearing community concerns, Seaspan has proposed several mitigations to address many of the feedback themes. These mitigations were refined through the public engagement process based on feedback from the community and are presented in the Consideration Table below.

The table shows how Seaspan has considered the feedback it received in 2021 and 2022 through all channels, including online feedback forms, emails, voicemails, letters and hand-written communications, along with emails from the public that had been sent to the port authority, which were forwarded to Seaspan for inclusion in this report. The feedback received is included in the Consideration Report – Appendices A (parts 1 and 2), B, C and D.

Seaspan understands that the community would like to see Seaspan demonstrate that it has listened to community feedback and take action in a number of areas – regardless of the permit application outcome. This is an important and key takeaway for Seaspan. As a result, in an effort to demonstrate Seaspan’s commitment to improved community collaboration and engagement, Seaspan has proactively initiated and / or completed some proposed mitigations in advance of a permit decision. These are noted with an asterisk (\*) and are also detailed in the accompanying Mitigation Table document.

In the table below, the feedback is organized around the key themes noted above, listed in order of level of interest:

1. Drydock Siting, Views and Shading
2. Noise
3. Air Quality
4. Land Use and Zoning
5. Public Engagement Process
6. Marine Habitat, Spill Prevention and Emergency Response
7. Lighting
8. Construction
9. Community and Communications
10. Traffic

Of note, the following themes have not been included, rather input received has been included within other themes:

- Playground Proximity (addressed within Air Quality);
- Property Values (addressed within Drydock Siting);
- Public Safety (although the topic was not clearly defined in the feedback, efforts have been made to address this theme within Noise, Air Quality, Emergency Response);
- Project Support; and,
- General Inquiries.

**DRYDOCK SITING, VIEWS, SHADING AND OVERALL SITE**

In late 2020, in response to sustained demand for drydocking services and as part of Seaspan’s long-term plan to consolidate these services at Vancouver Drydock, Seaspan initiated the port authority permit process to install two new drydocks and a work pontoon. As part of this initial work and subsequently in early 2022, Seaspan identified eight criteria that needed to be met for all potential siting locations. The criteria and siting assessment is detailed the [drydock siting fact sheet](#). Of note, these criteria were viewed as a whole – that all factors needed to be met in order for a location to be viable. Potential siting locations included the existing water lot, the west extension area that is an option in Vancouver Drydock’s lease agreement with the port authority and Pier 94, the area to the east of Vancouver Drydock which is leased and in use by another Seaspan company.

Within its PER application Seaspan proposed to shift the existing Careen drydock and future proposed drydocks 40 metres away from the shoreline and adjacent residential building, to mitigate potential impacts and to align the additional proposed drydocks similarly. Seaspan has already shifted the Careen to this new location 40 metres south and intends to operate from this location moving forward. Appreciating and fully hearing community concerns, Seaspan has worked to site the operations as far away from adjacent residences as possible and has also proposed mitigations for site clean-up and beautification; and enhancement of the new proposed drydocks aesthetics with painting and/or murals.

When asked about the proposed mitigations in the community survey, **61%** of residents in North Vancouver and beyond felt the mitigations were effective to address concerns. This decreased to **21%** for residents in closest proximity to Vancouver Drydocks.

Seaspan heard from the community that, for several reasons, many are not supportive of the proposed western siting and would rather see the new drydocks placed elsewhere. Seaspan has explored alternatives in depth, yet has been unable to identify viable options that would satisfy those who are not supportive.

Feedback Themes/Input	Seaspan Response
<p>Extending Vancouver Drydock’s water lot as outlined within the existing lease with the port authority and siting the drydocks in this area is not the preferred siting location.</p>	<p>Seaspan looked at all areas within its existing water lot to identify potential locations for the new proposed drydocks and work pontoon. Seaspan identified six potential locations that were fully assessed for feasibility by the project team. The team determined that five of the six locations would be unsuitable for the two drydocks because they did not meet the operational criteria and community needs. These criteria are detailed in Seaspan’s <a href="#">drydock siting fact sheet</a>.</p>

Feedback Themes/Input	Seaspan Response
Siting the new proposed drydocks to the east of Vancouver Drydock's existing operations, within its existing water lot.	Positioning the Careen drydock and the new proposed drydocks any further south would require several additional pilings than what is currently being proposed because of increased wind and tidal impacts. It would not eliminate the need for the work pontoon or cranes on the new proposed drydocks, as equipment and people would still need direct access from the main service pier.
Repositioning the existing Careen drydock to eliminate the need for either new pilings, the access pontoon or additional side-mounted cranes.	<b>Proposed Mitigation:</b> Given the proximity of the new proposed drydocks and work pontoon to nearby residences, shift the existing Careen drydock 40 metres south, away from the shoreline and align the new drydocks and work pontoon with the adjusted Careen positioning to reduce the potential for operational impacts.*
Siting the new proposed drydocks to the east of the existing operations - within the adjacent water lot that is currently leased by Seaspan ULC, a related company to Vancouver Drydock.	In preparing its project and environmental review (PER) application, Seaspan considered several potential locations for the new proposed drydocks, including the adjacent water lot directly to the east of its current operations. This location was deemed unsuitable because it did not meet all of the necessary siting criteria. Based on community feedback on the proposed siting, a written siting addendum was prepared, which outlines the specific criteria and assessment conclusion. This assessment is detailed within Seaspan's <a href="#">drydock siting fact sheet</a> .
The drydock activities should be shifted to Seaspan's shipbuilding site at the bottom of Pemberton Avenue.	The current and future shipbuilding activities at Vancouver Drydock's sister entity, Vancouver Shipyards, require all available space and cannot accommodate any drydock activity. Additionally, this location does not meet the necessary operational requirements.
View impacts from the adjacent public pier and nearby Lonsdale Quay.	Recognizing that Vancouver Drydock's facilities are several decades old, Seaspan regularly undertakes maintenance and improvements on its equipment and facilities to ensure operations run smoothly. Seaspan has also undertaken recent site improvements that are more cosmetic in nature, including painting of its two cranes along the service pier and planting shrubs along the south side of Victory Ship Way, immediately east of the main entrance.
The existing site is messy and needs to be cleaned up.	
Improve visual appeal of Vancouver Drydock's site, including painting of drydocks and other structures and replacement of	
Seaspan intends to construct permanent buildings for office and meeting spaces to replace several trailers used for these purposes today. Currently this project is in the early design phase. Seaspan recognizes that it must ensure that while Vancouver Drydock is an industrial site, it must be clean and tidy.	

Feedback Themes/Input	Seaspan Response
portable structures with permanent buildings	<p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>Engage with the City of North Vancouver and the local community, including Indigenous communities, to select the preferred colour(s) to best integrate the drydocks into the neighbourhood viewscape.</li> <li>Explore landscaping initiatives with the proposed community working group (detailed within the Community and Communications section on page 44) to improve the appearance of the Vancouver Drydock site perimeter, specifically for the portion of the Spirit Trail adjacent to the playground and in closest proximity to the Vancouver Drydock site. This could include planting vegetation to provide a visual screen.</li> <li>Work with the proposed community working group (detailed within the Community and Communications section on page 44) to seek additional opportunities for community dialogue related to the overall site conditions and beautification efforts.</li> </ul>
Vancouver Drydock ceasing operations in its current location and relocating to another coastal area of British Columbia.	<p>The terminals and service providers who operate within Canada's port authorities play a vital role in the Canadian economy – facilitating the export of Canadian products to global markets and import of goods in demand by Canadians.</p>
The use of the water lot extension area for shipbuilding-related activity is not acceptable use.	<p>Drydock and vessel repair services are essential infrastructure in all ports. Drydock and shipbuilding operations have existed in this location of North Vancouver for over 100 years and provide important ship maintenance services. As the drydock operations within the Port of Vancouver and other potential industrial sites are currently fully utilized, Seaspan does not have the ability to readily relocate to any other British Columbia location.</p>
North Vancouver industrial lands should be relocated elsewhere.	<p>Seaspan is proud to provide this essential infrastructure and services to enable Canada's economic well-being, and believes its facilities align with efforts to protect and maintain industrial lands.</p>
The proposed project would be encroaching on park land.	<p>The proposed water lot project is consistent with the port authority <a href="#">industrial designation</a>.</p>



Feedback Themes/Input	Seaspan Response
<p>The active working shipyard of Vancouver Drydocks adds to the interesting views.</p>	<p>The Government of Canada recognizes the importance of robust ports to facilitate the export of Canadian products to global markets and to meet the demand for goods from elsewhere.</p> <p>Drydock and vessel repair services are essential infrastructure in all ports and have existed in this location of North Vancouver for over 100 years. Seaspan is proud to provide this essential infrastructure and services to enable Canada's economic well-being.</p>
<p>The working harbour and the marine activities connected to Vancouver Drydock add to the vibrancy and enjoyment of the Shipyards District.</p>	<p>Seaspan is proud to have the ability to add a further 100 new family-supporting jobs to its existing workforce of 200 people today at Vancouver Drydock.</p> <p>In addition, Vancouver Drydock has 250 suppliers in the Lower Mainland including over 30 based on the North Shore. With two additional drydocks in operation, many of these businesses would see increased orders for goods and services which, in turn, contribute to business growth and increased economic activity in our region through the hiring of additional employees and investments in new equipment, office/workspace, and technology.</p>
<p>North Vancouver's waterfront industry is the heart of the community and should remain in place to provide good jobs and continued economic growth.</p>	<p>Seaspan is proud to provide essential infrastructure and services to enable Canada's economic well-being and is equally proud to be the industrial part of the mixed-use Shipyards District neighbourhood, carrying out activities that have taken place on this site for over 100 years.</p>
<p>Impacts on property values for adjacent residences due to the change in views.</p>	<p>As outlined within port authority communications, real estate values are not within the scope of the PER application review.</p>

**NOISE**

While port operations are industrial by nature and occur on a 24/7 basis, the port authority and its tenants, including Vancouver Drydock, have a responsibility to work to minimize noise impacts on surrounding communities. At Vancouver Drydock, noise is generated as vessels and tugs arrive and depart, when pressure washing hulls, during repair work, gantry crane movements and other general site activities which include safety alarms and alerts.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- the potential for an increase in overall noise levels;
- existing noise levels in the evenings and on weekends;
- the accuracy of noise modeling study that was included within the initial PER application;
- a lack of consultation with nearby residents about where, when and how the noise modeling was conducted; and,
- concerns about compliance should the project be approved.

When asked about the proposed mitigations in the community survey, **70%** of residents in North Vancouver and beyond felt the mitigations were effective to address concerns. This decreased to **24%** for residents in closest proximity to Vancouver Drydocks.

Hearing these concerns, the focus of the mitigations includes increasing the frequency and transparency of noise reporting; increasing notification when noise is anticipated to be longer than normal; continuing to research and invest in new technology to reduce site noise; and creating dedicated times for ‘quiet operations’ during certain times when outdoor events draw an anticipated a large number of people to the Shipyard District.

Feedback Themes/Input	Seaspan Response
The increased noise levels will have a detrimental effect on residents and nearby businesses.	The Environmental Noise Assessment was conducted by BKL Consultants Ltd (BKL), an independent engineering firm specializing in the field of acoustical consulting. The assessment was conducted to comply with the port authority's <a href="#">Project &amp; Environmental Review Guidelines - Environmental Noise Assessment</a> .

Feedback Themes/Input	Seaspan Response
The increased noise levels will have a detrimental effect on users of the nearby waterfront playground.	<p>The assessment compared the predicted post-project noise impacts against the PER Assessment Guideline indicators for consideration:</p> <ul style="list-style-type: none"> <li>• Post-project rated day-evening-night equivalent sound level (<math>L_{Rden}</math>) &gt; 75 dBa</li> <li>• %HA (percent highly annoyed)</li> <li>• Low noise frequency &gt; 70 dBa</li> </ul> <p>The assessment concluded the following:</p> <ul style="list-style-type: none"> <li>• The 3D model assessed noise levels at the Trophy, Cascade East and Cascade West developments. The model predicted that the <math>L_{Rden}</math> would increase one dBa at the Trophy (65 dBa to 66 dBa) development and three dBa at both the Cascade East (62 dBa to 65 dBa) and Cascade West (60 dBa to 63 dBa) development. The maximum predicted <math>L_{Rden}</math> does not exceed the Port of Vancouver's criterion at any of the residences.</li> <li>• The 3D model predicted an increase in %HA of 1.5% at the Trophy development, 3.4% at the Cascade East development and 3.8% at the Cascade West development. The predicted increase in %HA does not exceed the Health Canada guideline.</li> <li>• The assessment predicted an increase in the low frequency sound level (LLF) from 71 dBa to 75 dBa which suggests a slight likelihood of increased noise induced rattles. To date there have not been any reported incidences of rattles.</li> </ul> <p>Seaspan remains committed to minimizing the impact of our operations on the community. While Seaspan has the ability to operate 24 hours per day, Seaspan recognizes that its industrial operations are adjacent to residences and, as such, makes best efforts to schedule activities with the highest potential noise impact during the daytime (from 7:00am to 7:00pm), where possible.</p> <p>Of note, the port authority actively monitors noise within its jurisdiction and is responsible for the site selection of its noise monitoring stations. The closest station to Vancouver Drydock and the adjacent community is located at the boundary of the Vancouver Drydock site.</p>
Concern about increased overall noise levels into the evening and on weekends.	
Noise levels should not increase above existing levels with any additional drydock equipment or related activities and should be less in the evening.	
The additional activities will result in louder, continual noise.	
Vancouver Drydock and other terminal operators as federal port authority tenants operate under port authority regulations and are therefore not subject to City of North Vancouver noise bylaws.	
Noise is currently discernible 24 hours a day and considered disruptive at current levels.	
Seaspan Marine tugs idle adjacent to nearby residences and contributed to overall ambient noise levels.	

Feedback Themes/Input	Seaspan Response
	<p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>• In spring 2022, Seaspan conducted a trial of noise-reducing barrier panels around the ultra-high pressure (UHP) pumps. While the panels were effective in containing equipment noise, they were too heavy to mount onto the drydocks or lifts. As a result, Seaspan continues to use the panels primarily when working on barge or ship decks.*</li> <li>• Trial the use of noise-reducing curtains that are mounted on the drydocks. Acoustical consultants will establish baseline measurements at Vancouver Drydock and in the adjacent community to determine the effectiveness of the curtains. Seaspan will collaborate with the community working group (detailed within the Community and Communications section on page 44) to identify where the measuring devices will be placed.</li> <li>• Increase awareness of the port authority's ongoing noise monitoring by creating a direct link to the data on the Seaspan website.</li> <li>• Use lower-noise generating UHP crawler equipment, wherever technically feasible. UHP crawler machines suction to vessel hulls and simultaneously clean the hulls and collect debris. As they are vacuum sealed to the side of a ship, there is less noise compared to manual hull cleaning equipment.</li> <li>• Notify the community in advance, where possible, when potential high noise-generating work is anticipated outside of the regular working hours of 7:00am to 11:00pm. Notification will be sent to the Drydock email distribution list.</li> <li>• Recognizing the importance of outdoor summer activities in the Shipyards District, during evening operations, cease high-noise-generating UHP activities from 7:00pm to 7:00am on the Friday, Saturday and Sunday evenings of the July, August and September long weekends.</li> <li>• Work with the proposed community working group (detailed within the Community and Communications section on page 44) to seek additional opportunity for community dialogue related to noise from operations.</li> </ul>

Feedback Themes/Input	Seaspan Response
Existing Caren operations exceed allowable noise levels.	The port authority does not have allowable noise limits within its jurisdiction, however, Seaspan makes best efforts to schedule activities with the highest potential noise during the during the daytime (from 7:00am to 7:00pm), where possible.
Limited should be in place for the number of days UHP activities can occur.	
Concerns about the accuracy and credibility of the BLK noise modeling study, including the assumptions and methodology that was used.	<p>The Environmental Noise Assessment was conducted by BKL Consultants Ltd, an independent engineering firm specializing in the field of acoustical consulting. BKL generated a 3D computer model following the internationally recognized <a href="#">ISO 9613-2 (1996) standard</a> for predicting exterior sound propagation.</p> <p>The assessment was conducted to comply with the port authority's <a href="#">2015 Noise Guidelines</a>. The assessment was conducted and reviewed by two professional engineers registered with Engineers &amp; Geoscientists British Columbia.</p> <p><b>Proposed Mitigation:</b> Complete a post-project noise assessment to verify the permit application model predictions and to identify additional noise-reduction measures. Collaborate with the community working group (detailed within the Community and Communications section on page 44) to identify the location for the measuring devices that will be placed in the community and post the results on Seaspan's website.</p> <p>This noise assessment will be in addition to the port authority's ongoing noise monitoring activities.</p>
There should be ongoing noise monitoring to ensure actual noise levels are as predicted within the noise study.	
The noise study did not include consultation with nearby residents.	
There should be a noise monitor at the nearby waterfront playground.	

## AIR QUALITY

In 2017, Vancouver Drydock applied to Metro Vancouver, the regulator responsible for air quality policies, bylaws and permits, for an air emissions permit. Since that time, Vancouver Drydock has been actively working with Metro Vancouver to scope the parameters of the permit and establish baseline metrics which will regulate volatile organic compounds (VOC), metals and particulate emissions from on-site emission sources. Seaspan is committed to having a permit in place that meets Metro Vancouver requirements and accurately measures the site emissions as soon as possible and recognizes that the delay in permit activation is a concern for many.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- the potential for health impacts of increased air emissions;
- release of VOCs during operations;
- dust from operations on nearby spaces, including residential balconies and the nearby playground; and,
- the process for air quality monitoring and regulatory oversight.

When asked about the proposed mitigations in the community survey, **68%** of residents in North Vancouver and beyond felt the mitigations were effective to address concerns. This decreased to **25%** for residents in closest proximity to Vancouver Drydocks.

In response to community feedback, the focus of the mitigations includes initiating dust sampling in the community; sharing the results of air quality monitoring with the community; and taking a continuous improvement approach to adopting new tools and technology to further reduce site emissions.

Feedback Themes/Input	Seaspan Response
Concern about effects of air quality with the additional drydock activity.	As a certified member of Green Marine since 2011, Seaspan is committed to employing best practices and emerging technologies to reduce air emissions. Green Marine is a rigorous and transparent voluntary environmental certification program and measures companies' performance above and beyond regulatory compliance. As part of the Green Marine enhancement efforts, Seaspan has previously completed the following air quality initiatives:
The volatile organic compounds (VOCs) released during operations are toxic and damaging to human health.	

Feedback Themes/Input	Seaspan Response
<p>Concerns about dust from the drydock activities on nearby balconies and the playground.</p>	<ul style="list-style-type: none"> <li>• Transition from grit blasting to ultra-high pressure (UHP) water surface preparation, which is significantly more expensive but does not create any dust.</li> <li>• Low-carbon electrification of on-site equipment to reduce greenhouse gases.</li> <li>• Application of low volatile organic compound (VOC) paints where practical.</li> <li>• Use of high-efficiency paint spray nozzles.</li> </ul> <p>Particulate emissions monitoring is anticipated to be part of the Metro Vancouver air quality permit. Seaspan is awaiting Metro Vancouver requirements to purchase the appropriate equipment and will initiate monitoring as soon as it is able.</p> <p>Previously, Seaspan used grit blasting to clean vessel hulls, which generated dust. Seaspan has since transitioned to Ultra-High Pressure (UHP) water-based technology, which has eliminated dust from vessel cleaning.</p> <p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>• Work with the proposed community working group (detailed within the Community and Communications section on page 44) to identify an ‘in-community’ location to conduct particulate sampling every six months for two years, with results of the sampling to be published on Seaspan’s website. The purpose of the dust sampling will be to validate the composition and potential dust sources of gathered samples. At the conclusion of the two years of monitoring, Seaspan would work with an independent subject-matter expert to determine what, if any, additional actions may be helpful and will notify the community working group of any operational changes.</li> <li>• In addition to the Metro Vancouver regulatory reporting, Seaspan would publish a quarterly summary of the ongoing particulate emissions on the Seaspan website.</li> <li>• Continue to work with industry experts to assess new tools and technology in paint volatile organic compound (VOC) content and non-solvent-based alternatives in the marine coating industry.*</li> </ul>

Feedback Themes/Input	Seaspan Response
	<ul style="list-style-type: none"> <li>• Install a solvent recycling system to reduce the volume of new paint thinner consumed and waste generated and disposed. The system has been ordered and is scheduled to be operational by end Q1 2023.*</li> </ul>
A human health impact assessment should be part of the permit application.	<p>Seaspan is required to provide a safe workplace for everyone on our site, taking care of employees and, by extension, our neighbours around us. As Metro Vancouver is the regulator responsible for air quality, a human health impact assessment is not part of the port authority's PER process. The Metro Vancouver air quality management permit currently in development will require monitoring to ensure compliance with all air permit conditions and restrictions. Metro Vancouver will determine if additional modeling and/or mitigations are required.</p> <p><b>Proposed Mitigation:</b> Work with the proposed community working group (detailed within the Community and Communications section on page 44) to seek additional opportunities for community dialogue related to air quality.</p>
Seaspan and the port authority will be liable for the long-term health of nearby residents.	
The drydock activities will impact the health of children at the nearby playground.	
The permit application should include an air quality study.	
The monitoring station at St. George's is too far away.	<p>Monitoring station site selection is done by Metro Vancouver and currently, the closest Metro Vancouver air quality monitoring station is located within Moodyville Park.</p> <p>The monitoring station at St. Georges is a noise monitoring station managed by the port authority. The port authority maintains a noise monitoring network to track the source and intensity of port and urban noise. Locations were chosen in collaboration with noise experts, municipalities and community feedback.</p>



**LAND USE AND ZONING**

Vancouver Drydock operates in an area where several regulators have responsibility – Metro Vancouver regulates air, potable quality, and sewer/sanitary use; the City of North Vancouver regulates municipal development and activities taking place on its land; and the Vancouver Fraser Port Authority (port authority) regulates development and activities on its land and water areas.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- incompatibility of industrial activity adjacent to a high-density residential neighbourhood;
- zoning of the water lot south of the Shipyards District not compatible with the City of North Vancouver’s Official Community Plan;
- lack of clarity around which regulator has jurisdiction over activities in land and water areas; and,
- interest in more public waterfront access.

This feedback is outside of the scope of this PER application and is the responsibility of Seaspan’s regulators. As a result, Seaspan has not proposed any mitigations. However, Seaspan’s responsibility is to meet or exceed all regulatory requirements and is committed to doing so.

Feedback Themes/Input	Seaspan Response
The drydock activities support local businesses and strengthen the community.	Seaspan is proud to work with many local service providers to enable these essential infrastructure and services.
The additional activities will add more welcome good paying long-term jobs to the local community.	Seaspan is proud to have the ability to add a further 100 new jobs to its existing workforce of 200 people at Vancouver Drydock today.
The additional activities will increase the efficiency of the operations and increase the capacity and expertise of workers.	Drydock services are in high demand with limited capacity within the Port of Vancouver. The new proposed drydocks will be used to service a range of smaller vessels, such as the SeaBus, smaller BC Ferries vessels, fishing boats and tugs.

Feedback Themes/Input	Seaspan Response
<p>The Port Authority should not contemplate any future commercial (industrial) activity along the North Vancouver waterfront.</p>	<p>This is not within Seaspan’s influence as a leaseholder. The existing water lot and new proposed water lot extension are within the jurisdiction of the port authority and have an ‘Industrial’ designation within the port authority's <a href="#">Land Use Plan</a>.</p>
<p>There was no buffer zone created by the City of North Vancouver and developers when building the new residences. We are a port city that needs drydocking space.</p>	<p>The existing water lot and new proposed water lot extension are within the jurisdiction of the port authority and have an ‘Industrial’ designation within the port authority's <a href="#">Land Use Plan</a>.</p> <p>On-land zoning of the Shipyards District is within the responsibility of the City of North Vancouver.</p>
<p>This project is not compatible with the City of North Vancouver’s Official Community Plan.</p>	
<p>Industrial marine activity should be as far away as possible from the Shipyards District to preserve the desirability of the area.</p>	<p>The Shipyards District is a vibrant and diverse mixed-use neighbourhood that is a unique mix of commercial, residential and industrial spaces. Seaspan is proud to be the industrial part of this mixed-use community. Many individuals who live and visit the Shipyards District regularly contact Vancouver Drydock to learn more about the activities happening at the drydocks.</p>
<p>The proposed additional drydocks are inconsistent with the current mixed residential, commercial and industrial activities within the Shipyard District.</p>	<p>Drydock and vessel repair services are essential infrastructure in all ports and have existed in this location of North Vancouver for over 100 years. Seaspan is proud to provide this essential infrastructure and services which contribute to Canada’s economic viability and well-being. Seaspan is proud to work with many local service providers to enable this essential infrastructure and services.</p>
<p>The proposed additional drydocks will impact the viability of the Shipyard District as a tourist attraction.</p>	<p>The port authority has a process for re-designating areas within its jurisdiction, under its <a href="#">Land Use Plan</a>. The port authority has a Land Use Plan, which was updated in 2020. The water areas close to the Shipyards District have either ‘Industrial’ or ‘Commercial’ use designations, and these were not changed in the 2020 update process, which including Indigenous, stakeholder and public consultation.</p>
<p>The proposed drydocks would impact the enjoyment of those living in and visiting the Shipyards District.</p>	<p>While the port authority’s update process did involve stakeholder and public consultation, there was no consultation about this particular area as no changes were proposed.</p>

Feedback Themes/Input	Seaspan Response
<p>The additional drydocks will change the Shipyards District from a leisure destination to an industrial area.</p>	
<p>The current mixed-use composition of the Shipyards District is incompatible and industrial activity should be moved elsewhere.</p>	
<p>Vancouver Drydock supports made-in-BC shipbuilding and overall port activity.</p>	
<p>Lower Lonsdale has been a marine repair/shipyard for over 100 years, this work and the workers need to be protected from encroaching residences.</p>	
<p>Connecting the Spirit Trail on the waterfront between the Polygon Gallery and Lonsdale Quay (versus traveling around the Seaspan building).</p>	<p>The land between the Polygon Gallery and Lonsdale Quay is under the jurisdiction of the City of North Vancouver. Seaspan is not aware of any plans by the City of North Vancouver to alter the Spirit Trail in this location to enable a contiguous waterfront path.</p>
<p>Moorage for private vessels to the east of Lonsdale Quay.</p>	<p>The water lots near Lonsdale Quay are under the jurisdiction of the port authority and have either Terminal or Commercial designations within the port authority's <a href="#">Land Use Plan</a>. Seaspan is not aware of any plans by the port authority to change the designation of that water lot for Recreation use.</p>

**PUBLIC ENGAGEMENT PROCESS AND REGULATORY OVERSIGHT**

The port authority deemed this project a Category C project under the port authority’s Project and Environmental Review (PER), and as part of this categorization provides specific requirements within its public engagement guidelines to ensure appropriate public notification and sufficient opportunities for public engagement and feedback.

In advance of the public engagement activities in 2021 and 2011, Seaspan submitted a public engagement plan to the port authority for approval. This plan, in addition to feedback received from the port authority and residents, guided the activities.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- the scope and duration of the engagement activities;
- notification of North Vancouver residents about the project and feedback opportunities;
- the port authority’s regulatory oversight;
- City of North Vancouver vs port authority jurisdiction.

Seaspan’s responsibility for public engagement is to work within the parameters of the PER process and committed to meet or exceed all requirements. Hearing concerns about the 2021 engagement activities, during the 2022 supplementary public engagement period, Seaspan, with guidance from the port authority, used new engagement methods, worked with an experienced IAP2 facilitator to structure and support the in-depth workshops, increased notification and extended the public comment period beyond the minimum required time.

Feedback Themes/Input	Seaspan Response
Community notification did not reach all individuals within multi-unit residential buildings during the 2021 public engagement period.	<p>Seaspan used a number of notification methods to inform the North Vancouver community about the proposed project and public feedback opportunities. These included a newsletter prior to engagement getting underway, direct mail postcards, advertising in the <i>North Shore News</i>, social media posts and connecting with individual strata councils. Seaspan also extended the public engagement zone beyond the minimum requirement of 500 metres.</p> <p>Of note, unaddressed mail can be blocked – a resident may make that choice and tell Canada Post they do not want to receive unaddressed mail. Those addresses that have opted out would not be included in the Canada Post counts.</p>

Feedback Themes/Input	Seaspan Response
	<p>When the 2021 public engagement period was extended, Seaspan provided notice of the extension with an additional print ad and digital newspaper ad in the <i>North Shore News</i>, Facebook ads, and emailing those who had signed up for further project updates.</p> <p>In 2022, Seaspan used a more targeted Canada Post service – addressed-mail service – to ensure greater notification. Seaspan also increased the frequency of the postcard mailing and advertising.</p>
The public engagement process was insufficient in 2021.	Seaspan submitted its proposed public engagement plan to the port authority for approval prior to commencing the public engagement activities, including in 2021, meeting all provincial COVID-19 requirements and restrictions.
The public comment period was insufficient and should not have occurred in July or August, after easing of COVID-19 restrictions.	<p>The port authority “<a href="#">Public engagement guidelines update in light of COVID-19</a>” required a 25-business day public engagement period without any exclusions during the months of July or August. Seaspan complied with this requirement and, on request, extended the comment period a further eight business days through to August 12, 2021.</p> <p>In 2022, Seaspan extended the broad community survey engagement period as part of the supplemental engagement, from July 27, 2022 through to September 14, 2022, to ensure sufficient opportunity for the community to provide feedback and input. Seaspan also advertised and sent out direct mail postcards twice – at the start of the public comment period and as a reminder two weeks prior to the comment period close.</p>
Attendees at the community information meetings (2021) were not given an opportunity to speak.	With 55 and then 72 people in attendance at the virtual community meetings, combined with Seaspan wanting to provide equal opportunity for all those who attended the meeting to ask questions, the Chat function was used for questions. All questions were documented and subsequently responses were provided on the <a href="#">project website</a> .
In the meeting with strata councils (2021), all residents were not invited to attend the meeting with Strata Council representatives.	In addition to the two community meetings open to all members of the public, Seaspan offered to meet with nearby strata council representatives to address questions specific to these neighbours. The intention of this meeting was not to host an additional open house, but to meet with strata representatives.

Feedback Themes/Input	Seaspan Response
<p>The renderings within the Project Information Guide did not consistently include vessels.</p>	<p>The renderings on the <a href="#">website</a>, in the community meeting presentations, and within the project information guide, are illustrative of how the operations would appear, should the proposed project be approved. Seaspan included a range of photos and vessels to show the variety that would likely be at the Vancouver Drydock for service and repair following the installation of the proposed new drydocks.</p>
<p>It is unclear how the port authority ensures Seaspan would continue to meet all / any of the permit requirements and conditions.</p>	<p>As a tenant of the port authority, Seaspan has an obligation to meet all of the lease terms and requirements as set out by the port authority. This includes meeting all of the conditions that may be included in a permit, should one be approved.</p> <p>Additionally, as a port authority tenant, Seaspan's project would be subject to the port authority's <a href="#">Compliance Monitoring and Enforcement Program</a>, under which projects are monitored for compliance of all permit conditions.</p>

**MARINE HABITAT, SPILL PREVENTION AND EMERGENCY RESPONSE**

Marine wildlife and habitat protection is strictly controlled by Fisheries and Oceans Canada (DFO), including how water is collected and treated in operations. Seaspan makes every effort to prevent a spill in the marine environment. Like all its operating locations, Vancouver Drydock has a robust Spill Contingency Plan and Fire and Emergency Response Plan to effectively manage site incidents.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- impacts on marine wildlife as a result of construction and expanded operations;
- the potential for spills into the marine environment;
- ensuring there were effective emergency plans, coordinated with North Vancouver emergency responders.

When asked about the proposed mitigations in the community survey, **68%** of residents in North Vancouver and beyond felt the mitigations were effective to address concerns. This decreased to **30%** for residents in closest proximity to Vancouver Drydocks.

Hearing these concerns, the focus of the mitigations includes promoting safe navigation and on-water operations; improving communications and collaboration with North Vancouver emergency responders; and not only protecting, but enhancing, the marine habitat environment.

Feedback Themes/Input	Seaspan Response
Concern about future possible oil spills (noting a spill on June 7, 2021).	<p>Seaspan takes every precaution to avoid spills into the marine environment. Seaspan has well-established preventative maintenance programs, fuel and oil handling procedures, and robust spill response plans, equipment, and training at all our facilities and vessels. Any spills or releases which may occur are reported and tracked regardless of volume. All incidents or near-misses are investigated to determine the cause, and corrective actions implemented to prevent future occurrences.</p> <p>On June 7, 2021, Seaspan experienced a fuel spill from the Seaspan <i>Commander</i> tugboat during operations in Burrard Inlet. The vessel Emergency Spill Response Plan was immediately initiated, authorities, including the Coast Guard, were notified, and Western Canada Marine Response Corporation (WCMRC) responded. The detailed investigation that followed identified that the release was a result of a faulty relay contact related to the vessel fuel system and day tank transfer pump. The corrective actions were to replace the relay and add in additional alarm notification systems. Similar systems equipment on</p>

Feedback Themes/Input	Seaspan Response
	<p>other vessels in the fleet were also assessed, and modifications applied to prevent risk of future occurrences.</p> <p>As outlined in the <a href="#">Construction Environmental Management Plan</a>, Seaspan's Spill Response Plan and Spill Prevention and Response Plan will be updated to include the new proposed equipment, which will continue to align with the BC <a href="#">Environmental Management Act</a>.</p>
<p>The expansion will interfere with the marine habitat.</p>	<p>Seaspan submitted a Project Review document to Fisheries and Oceans Canada (DFO). DFO agreed with the environmental consultant who prepared the Project Review document (Hatfield Consultants) that there will be no negative effects of construction or operations on marine habitat.</p> <p>Seaspan conducted a <a href="#">habitat assessment</a> of the seabed using scuba divers who recorded video. There was no marine habitat (e.g., seaweed or eelgrass) on the seabed in this area because the sediment is composed of silt (which cannot support seaweeds) and the water is too deep to support eelgrass.</p> <p>The addition of six piles provides a surface for marine invertebrates (e.g., mussels, anemones) to attach to, in a location where there is currently no hard surface to attach to. This is an example where there would be more marine habitat for these organisms should the proposed project be constructed.</p> <p><b>Proposed Mitigation:</b> Work with local marine-focused non-profit organizations to install four herring net panels on the existing service pier to support the herring population. These panels are a suitable structure for herring spawning and are also attractive for juvenile Dungeness crab. Panels would be installed and removed annually. Following the first season, Seaspan would assess the location of the panels and adjust, as necessary. After three years, should no evidence of herring spawning be present, Seaspan would work with the local non-profit organization to find another suitable location.</p>
<p>The expansion will interfere with marine wildlife (marine mammals, fish, and birds).</p>	<p>Seaspan submitted a Project Review to Fisheries and Oceans Canada (DFO). DFO agreed with the environmental consultant (Hatfield Consultants), who prepared the Project Review document, that there will be no residual negative effects of construction or operations on marine wildlife.</p> <p>The presence of the proposed drydocks will not negatively affect sea life use of the area because the area (between Seaspan's service pier and the public pier) is already heavily used by vessels today. The</p>



Feedback Themes/Input	Seaspan Response
	<p>addition of six piles will not hinder wildlife's current use of the area. In addition, the new lights for the new drydocks and work pontoon will be focused on the docks, with minimal light penetration into the marine environment.</p>
<p>A conservation zone should be created between Seaspan's Careen drydock and the public pier.</p>	<p>This is not within Seaspan's influence as a leaseholder. The water lot is within the jurisdiction of the port authority.</p>
<p>The wetlands, watershed and coastline communities of British Columbia should be re-naturalized.</p>	<p>Marine habitat protection and restoration is a priority at Seaspan. Along with community and First Nation partners and advisors, Seaspan has helped implement several habitat restoration projects in the Mackay Creek estuary over the last 10 years, supports habitat restoration efforts in Mosquito Creek and is an ongoing supporter of the Pacific Salmon Foundation and local hatcheries such as at Mossom Creek. Seaspan also supports efforts to improve water and sediment quality through projects like the removal of abandoned creosote piles with the Tsleil-Waututh Nation.</p>
<p>Concern about water pollution and water from operations entering the ocean.</p>	<p>Seaspan's three shipyard sites, including Vancouver Drydock, are certified under Green Marine, a rigorous and transparent voluntary environmental certification program for the North American marine industry. Green Marine measures companies' performance above and beyond regulatory compliance in a number of key categories including spill prevention, stormwater protection, air emissions and waste management.</p> <p>Seaspan also operates under ISO 14001:2015 Environmental Management System (EMS), which is certified annually by Lloyd's Register. A requirement of the EMS is a commitment to pollution prevention, including verification of the effectiveness of controls to protect the environment encompassing engineering controls, operations, procedures and training.</p> <p>Like at all Seaspan Shipyards' sites, water used during operations at Vancouver Drydock does not drain into the ocean. When vessels are in the drydocks, vessel wash water and stormwater are collected and treated in a two-step process at the on-site wastewater treatment facility to remove contaminants. The water is then discharged to the sanitary sewer, as permitted by Metro Vancouver.</p> <p>All vessels operating in the harbour are responsible for understanding and operating within <a href="#">Transport Canada regulations</a> and local requirements. Prior to a vessel arriving at Vancouver Drydock, owner</p>

Feedback Themes/Input	Seaspan Response
	<p>representative(s) are advised of safety policies and procedures, environment and waste management regulations, docking requirements.</p> <p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>• The proposed new drydocks would be connected to the existing wastewater treatment system. The water would be treated according to existing practices under Seaspan’s Environmental Management System (EMS).</li> <li>• Enhance safe navigation and further reinforce safe on-water operations and environmental protection by providing vessel owner representative(s) with a link to port authority’s <a href="#">Port Information Guide</a>.*</li> </ul>
<p>Seaspan should have a robust spill prevention and emergency response plan.</p>	<p>Seaspan’s has a robust Spill Prevention and Response Plan aligns with the BC <a href="#">Environmental Management Act</a>.</p> <p>While preventing spills is the priority for all of Seaspan’s operations, all facilities, vessels and projects are prepared to respond effectively in the event of an environmental incident or emergency. The Spill Prevention and Response Plan details steps for risk assessment, spill prevention and response for both on-land and on-water spills. Two spill booms are strategically located on site for deployment and spill kits are located throughout Vancouver Drydock’s site, including on the service pier and both floating drydocks. Vancouver Drydock personnel undergo regular training to be able to respond to spills in accordance with the plan.</p> <p>Seaspan also has a robust Fire and Emergency Response Plan. This plan was developed to align with the <a href="#">BC Emergency Response Management System</a> to ensure a coordinated, organized response to any emergency in the province.</p> <p>Fire prevention at Vancouver Drydock is a top priority and the responsibility of all workers, management, contractors and visitors. This includes permits for hot work being obtained prior to starting any work that could potentially cause a fire (e.g., welding, plasma cutting, grinding etc.), observing appropriate fire watch and cool down periods for all hot work and maintaining all electrical equipment in good repair.</p>

Feedback Themes/Input	Seaspan Response
	<p>All workers and visitors to Vancouver Drydock are given a health and safety, environment and emergency program orientation before starting work, and training is updated regularly. Fire and evacuation drills are conducted a minimum of once per year. Fire and emergency drills are followed by a debrief to review the drill and suggestions to continuously improve the fire and emergency plan.</p> <p>Recognizing the unique challenges faced by first responders to shipboard and drydock incidents, Seaspan has been working with all three North Shore fire departments for several years to develop comprehensive training to improve land-based marine firefighting and emergency response.</p> <p>Seaspan works collaboratively with all three North Shore municipalities to develop training and improved cooperation in support of improved marine firefighting capability and capacity at Seaspan's North Vancouver operations, including at Vancouver Drydock. Seaspan also regularly meets with the North Shore fire department Chiefs (and/or their alternates) to keep teams apprised of new developments at Seaspan's operations and to ensure continuous improvement on emergency response.</p> <p><b>Proposed Mitigation:</b> Update the Fire and Emergency Response Plan to include all components of the proposed project.</p>

## LIGHTING

While activities at Vancouver Drydock predominantly occur between 7:00am and 11:00pm, Seaspan has an obligation to ensure it meets the necessary safety requirements for a 24/7 industrial port operation. As a result, some lighting must be on at all times.

The proposed project lighting levels meet the minimum maintained average illuminance in accordance with Occupational Safety and Health Administration safe light practices and the Illuminating Engineering Society's recommended lighting level for shipyards and docks. The lighting plan for the new proposed drydocks and work pontoon has been designed to meet all necessary requirements for safe operations, to be dark-sky friendly and also to minimize glare in the marine environment and towards the shoreline.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- disruption to nearby residents from light spill / light pollution;
- the assumptions and methodology within the lighting study; and,
- the credibility and accuracy of the lighting study.

When asked about the proposed mitigations in the community survey, **72%** of residents in North Vancouver and beyond felt the mitigations were effective to address concerns. This decreased to **33%** for residents in closest proximity to Vancouver Drydocks.

Hearing these concerns, the focus of the mitigations includes reducing the height of the lighting standards; amending the lighting colour; adding shielding; and accelerating the retrofit of the existing operations that is now underway.

Feedback Themes/Input	Seaspan Response
The lighting on the new proposed drydocks and work pontoon will create light pollution.	<p>The lighting would be dark-sky-friendly. To be considered dark-sky-friendly, the design must follow the International Dark-Sky Association recommendations to minimize light pollution and should:</p> <ul style="list-style-type: none"> <li>• Only be on when needed (photocell and dimmer controlled).</li> <li>• Only light the area that needs it (dark sky friendly).</li> <li>• Be no brighter than necessary (illuminated to appropriate code requirements for safety and operation).</li> </ul>
Lighting should be turned off when not in use.	

Feedback Themes/Input	Seaspan Response
	<ul style="list-style-type: none"> <li>• Minimize blue light emissions (by using 3000degK (warm) colour temperature rather than 4000degK (cool) colour temperature).</li> <li>• Be fully shielded (dark sky friendly).</li> </ul> <p>The lighting design for the work pontoon meets these standards. Additionally, the lights would be turned on and off via a photocell, so that they are only on at night, and incorporate sensors, to dim the lights when no activity is detected in the area. The fixtures would focus light on the work area.</p> <p>House-side shields would also be used. A house-side shield reduces, to a minimum, the light spread on the side of the fixture facing a residential area.</p> <p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>• The lighting used to illuminate the work pontoon would be dark-sky-friendly, which is specifically designed to eliminate light outside of the required circulation and work areas.</li> <li>• Work with the proposed community working group (detailed within the Community and Communications section on page 44) to seek additional opportunities for community dialogue related to lighting at the site.</li> </ul>
<p>Concerns about the assumptions and methodology, accuracy and credibility of the lighting study.</p>	<p>The lighting study was undertaken by a certified professional electrical engineer.</p> <p>The study makes no assumptions. The methodology used incorporates an internationally recognized computer software program ('Visual Lighting') to determine lighting levels using source data obtained from the light fixture manufacturer.</p> <p>Neither the software program nor the light fixture source data can be manipulated to produce inaccurate lighting levels.</p>
<p>The light pole height and light temperature should be reduced and shielded fixtures used.</p>	<p>Seaspan has considered the public's feedback and has accordingly, amended the lighting design.</p> <p><b>Proposed Mitigations:</b></p>

Feedback Themes/Input	Seaspan Response
	<ul style="list-style-type: none"> <li>• A house-side shield would be added to the work pontoon main light fixtures. With this shield added, the lighting level is reduced to zero at 11m/35ft from the work pontoon (as opposed to 28m/92ft without a shield).</li> <li>• The height of the proposed work pontoon poles would be reduced from 10.7m (35ft) to 7.5m (25ft) to minimize the visual impact of the lighting installation.</li> <li>• As per International Dark-Sky Association recommendations, to minimize blue light emissions, the colour temperature of the light fixtures would be reduced from 4000degK (cool white) to 3000degK (warm white).</li> </ul>
Existing lighting levels are disruptive to nearby residences.	<p>Seaspan has considered the public's feedback and has initiated a retrofit of the entire existing site lighting to dark-sky-friendly lighting.</p> <p><b>Proposed Mitigation:</b> While existing operations are outside the of the scope of this PER application, Seaspan would replace existing light poles and building mounted lights with dark-sky-friendly lighting (as described above), incorporating house-side shields, where appropriate.*</p>

## CONSTRUCTION

Should the permit be approved, the new drydocks and work pontoon would be transported on water to Vancouver Drydock's site fully assembled. The pile driving construction activities needed to secure the drydocks and work pontoon in place are anticipated to take less than six weeks, with additional retrofitting and customization of the drydocks once on site. Construction activities will be overseen by professional environmental scientists and engineers to ensure marine habitat and wildlife disruption does not occur.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- potential impacts to the foundations of nearby buildings;
- construction-related noise;
- increased marine traffic;
- negative impacts on marine and aviary wildlife.

When asked about the proposed mitigations in the community survey, **71%** of residents in North Vancouver and beyond felt the mitigations were effective to address concerns. This decreased to **28%** for residents in closest proximity to Vancouver Drydocks.

Hearing these concerns, the focus of the mitigations includes minimizing the construction-related noise by selecting lower-noise techniques; putting vibration monitors in place adjacent to nearby buildings; and having monitors on site to protect wildlife.

Feedback Themes/Input	Seaspan Response
<p>Pile driving and related vibrations will undermine the foundations of nearby buildings.</p>	<p>The pile driving will primarily use vibro-installation techniques and drilling, which reduces the overall effects of pile driving on the local environment.</p> <p>Significant research has been undertaken over the last 50 years recognizing that pile driving-related ground vibrations can have an effect on nearby structures. There have been numerous data produced identifying “distance from pile driving” and “potential for damage” relationships. The point at which damage to a residential structure becomes a concern is when piling is occurring within 50 feet of a nearby structure. At distances of over 150 feet to 250 feet away, the ground vibrations are considered perceptible, but not harmful.</p> <p>The closest adjacent residential building foundation (the Trophy) is 520 feet from the nearest pile location. At distances of over 500 feet away, the measured ground vibrations would be classified as barely perceptible and</p>

Feedback Themes/Input	Seaspan Response
	<p>therefore unlikely to cause damage to any building, as outlined within the National Highway Institute, publication no <a href="#">FHWA-NHI-16-009</a>.</p> <p>In order to evaluate the associated impacts to sensitive neighbouring structures, the <a href="#">Norwegian Standard NS 8141</a> Vibration and Shock: “Measurement of Vibration Velocity and Calculation of Guideline Limit Values in Order to Avoid Damage on Construction” is an example of industry best practice to determine suitable peak particle velocity (PPV) vibration limit levels to protect sensitive structures near the project site. Using such a document, guideline limit values of PPV may be determined by a vibration specialist using site specific factors.</p> <p><b>Proposed Mitigation:</b> Engage a specialist vibration consultant to instrument and monitor the vibrations adjacent to the foundation of the nearest building to ensure vibrations remain within safe levels.</p>
<p>The construction period will be disruptive and increased marine traffic and pile driving will negatively impact marine and aviary wildlife.</p>	<p>Efforts have been made to minimize both the construction size and duration. The piling has been designed to have six piles in total and the length of time for this activity is expected to be less than six weeks. The timing of the installation is set to meet Fisheries and Oceans Canada (DFO) requirements for minimum impact to fish and fish habitat.</p> <p>The project team is not aware of any bird habitat located near the project site, nor of any bird wildlife which would need protecting during construction. Consequently, mitigation measures focus primarily on marine wildlife and subaquatic noise levels.</p> <p>The impact to marine wildlife is strictly controlled by DFO and safe (least impact) practices will be implemented at this site in accordance with the port authority permit requirements laid out to perform the construction work. For example, “soft start” procedures involve the gradual increase in hammer energy at the start of pile driving with the intention of keeping marine mammals away from the activity before the full volume of underwater noise is reached. This method reduces noise exposure and therefore risk of injury by activating an avoidance response in the mammals and giving them time to clear the area.</p> <p>The environmental professionals at DFO (those that set the requirements) and present at this site (those that monitor the requirements) will provide the necessary input and feedback on the installation to ensure the least harm methods are employed and functioning.</p>



Feedback Themes/Input	Seaspan Response
	<p>A professional Environmental Engineer and Environmental Monitor will be onsite during the piling activities to ensure the practices employed are appropriate and do not result in harm to marine mammals. Techniques such as underwater sound attenuation, the use of a bubble curtain and visual monitoring, will be employed, as indicated by the professional engineer.</p> <p>If mammals get too close to the construction works and a condition arises which threatens their safety, the work will be halted until the safety of the mammals can be demonstrated. This is outlined in the <a href="#">Construction Environmental Management Plan</a> (CEMP).</p>
<p>The geologic profile below the seabed is unclear and may impact the duration of pile driving activity.</p>	<p>Seaspan's dive survey of the seabed indicated that the top/superficial layer is mostly composed of silt. Additional information is found on the original construction drawings for the pier. The geotechnical investigation at that time revealed that the seabed comprised of the following general soil layers:</p> <p>The top 2 ft is soft silt or fine sand, the next layer extends 10 ft to 20 ft below the silt and comprises medium-dense to dense sands and gravels with some silt, shells and cobbles. Next is a dense till layer which starts below the layer described above and is approximately 15 ft to 20 ft in thickness. Below this till layer is coarse gravel or very dense sand with boulders identified throughout and/or additional layers of till.</p> <p>The design pile embedment depth is expected to be up to 60 ft into the seabed. The pile driving will use the preferred method of vibro-hammer installation to reduce potential impacts to marine mammals. This method is expected to be successful through to the till layer, however, it is uncertain if vibro techniques will be successful through the till and beyond.</p> <p>Consequently, drilling from inside the pile may be required to advance the pile to deeper depths. Cuttings will be collected and discharged to a scow for off-site disposal. Recognizing that pile cleanout is also required to significant depth for the design to allow concrete infill, drilling is to be expected at some point during the installation. Impact driving is to be avoided unless necessary to get past obstructions which inhibit advancing the pile. In the event of impact driving, additional measures will be implemented to mitigate aquatic noise levels as identified in the <a href="#">Construction Environmental Management Plan</a> (CEMP) and the letter of advice from DFO.</p>

Feedback Themes/Input	Seaspan Response
<p>Construction activity will generate dust and impact air quality at nearby residents and businesses.</p>	<p>The construction activities undertaken for this installation are not of a nature to generate dust, particularly given that pile driving is in the water. The drilling out of the piles, in preparation for concrete infill, will be a wet activity which makes it easier to contain the construction soil waste. The concrete pours are also a wet activity and DFO has strict requirements that no spill over is permitted into the marine environment. Displaced water within the pile is captured and treated before being disposed of.</p> <p>The power to run the construction equipment is typically provided by diesel fuel and the burning of this product (as with all carbon fuels) does produce emissions, which can affect air quality.</p> <p>Two marine rigs are expected to be required on site during the pile installation and they will be mostly stationary for the duration of the construction. Small skiffs will be present on site to move workers around the water as required. These skiffs have small engines and generate minimal noise. All construction equipment will be operated efficiently and only when required. This is outlined in the <a href="#">CEMP</a>.</p> <p><b>Proposed Mitigation:</b> Work with the proposed community working group (detailed within the Community and Communications section on page 44) to seek additional opportunities for community dialogue related to construction activities.</p>
<p>There is no assessment of noise during construction.</p>	<p>Noise monitoring and assessment during construction is not required by the port authority's permitting process. However, Seaspan recognizes that construction of marine works, like the construction of buildings and most other infrastructure, will generate noise.</p>
<p>Noise levels will be disruptive during construction.</p>	<p>"Soft start" procedures involve the gradual increase in hammer energy at the start of pile driving with the intention of keeping marine mammals away from the activity before the full volume of underwater noise is reached. This method reduces noise exposure and therefore risk of injury by activating an avoidance response in the mammals and giving them time to clear the area.</p> <p><b>Proposed Mitigation:</b> Noise would be minimized by muffling engines, timing operations within daylight hours, and adopting quieter installation techniques for pile driving wherever possible, installing bubble curtains, and using "soft start" procedures. This is detailed in the <a href="#">CEMP</a>.</p>

**COMMUNITY AND COMMUNICATIONS**

Directly to the west of Seaspan’s Vancouver Drydock is the Shipyards District. Once also used for industrial purposes, today the Shipyards District has been transformed into a unique mix of high-density residential and commercial uses, with recreational and cultural amenities and year-round programming that attracts residents and visitors alike. Seaspan recognizes the importance of maintaining the vibrancy of the community environment as part of the proposed project.

Through the public engagement activities in 2021 and 2022, Seaspan heard feedback about:

- industrial marine activity occurring too close to the Shipyards District;
- impacts of views, noise, air quality, lighting negatively impacting the Shipyards District residents, visitors and businesses;
- lack of visual appeal of Vancouver Drydock’s site compared to the newer Shipyards District;
- enjoyment watching the active waterfront, including the comings and goings at Vancouver Drydock;
- interest in learning more about Seaspan’s operations and how to contact Seaspan for questions and feedback.

In the community survey, Seaspan devoted one section to Community and Communications – in part, to gather input on proposed initiatives and to understand what is most relevant for Seaspan to share with the community.

When asked about proposed initiatives to improve community relations, **50%** of residents were supportive of both establishing a community working group and in publicly sharing community inquiries and Seaspan’s responses. **48%** of residents were supportive of maintaining a dedicated community phone line and email address and **43%** of residents were supportive of providing tours to schools and community groups.

Feedback Themes/Input	Seaspan Response
Communications with the community are inconsistent and infrequent.	Many in the community are aware of the work Seaspan does and how it supports community organizations and Seaspan is committed to providing relevant information to the community on its operations, people, career opportunities and engagement with the community. Seaspan also has an active presence on social media platforms and posts regularly about business milestones and community involvement.
Increase communication to provide information and strengthen relationships with neighbours.	

Feedback Themes/Input	Seaspan Response
Provide information about Seaspan's operations and potential for employment opportunities.	<p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>• Increase frequency of the 'Seaspan News' e-newsletter to share stories and information about its businesses, career opportunities and community initiatives. While the newsletter has been published periodically, increase the frequency to quarterly. Community members will be encouraged to sign-up for the e-newsletter on the Seaspan website (<a href="https://www.seaspan.com/resources/">https://www.seaspan.com/resources/</a>).</li> <li>• Establish a community working group, with the goal to share information about operations, receive feedback, and foster ongoing dialogue. The terms of reference will be developed in consultation with a qualified IAP2 facilitator. The minutes of the meetings will be available on Seaspan's website.</li> <li>• Explore opportunities to work with partners to create educational material on its operations to increase awareness with children and youth about the industry, range of careers available and how the industry is working to minimize impacts on the environment.</li> </ul>
Increased outreach to engage children in the marine industry.	
Increase apprenticeship opportunities to work at Vancouver Drydock.	
Provide a direct contact for complaints related to operations and ongoing consultation.	<p><b>Proposed Mitigations:</b></p> <ul style="list-style-type: none"> <li>• Maintain the PER application dedicated phone line and email as a dedicated channel for community inquiries and feedback (<a href="mailto:community@seaspan.com">community@seaspan.com</a> and 778-729-0288) to provide a means for ongoing communication.*</li> <li>• Compile and publicly share a quarterly report on community complaints and Seaspan's responses on the Seaspan website.</li> </ul>
Have accessible information explaining the type of work going on at Vancouver Drydock.	<p><b>Proposed Mitigation:</b> Explore collaborating with stakeholders to develop an information area/board in the Shipyards District, which would have some space devoted to providing updates on projects at Vancouver Drydock. Any structure placed within the City of North Vancouver jurisdiction would be conditional on support from the municipality.</p>

Feedback Themes/Input	Seaspan Response
Create opportunities for public access to Seaspan's shipyards and marine transportation operations.	<p><b>Proposed Mitigation:</b> While Seaspan currently hosts tours on request for school and community groups, expand the community tour program to include the public with a published tour schedule on the Seaspan website.</p>
Provide tours and open houses for the public.	
Communication between Seaspan and the City of North Vancouver could improve.	Seaspan has regularly communicates and meets with senior staff and elected officials at the City of North Vancouver to provide business updates and discuss issues. While communications with the City is outside the scope of this permit application, Seaspan recognizes the importance of sustaining and enhancing these communications and is committed to doing so moving forward.
Interest in supporting a community amenity.	<p>The community survey showed strong support for an environmental-related community amenity and there was also moderate support for a recreational hub, an annual community event and for public art.</p> <p><b>Proposed Mitigation:</b> In addition to Seaspan's ongoing financial contributions to various community projects and initiatives on the North Shore and elsewhere, commit an incremental \$75,000 towards a community amenity within City of North Vancouver. Seaspan would collaborate with the municipality to identify the amenity project and location.</p>

## TRAFFIC

Vancouver Drydock is located adjacent to a neighbourhood that was previously industrial and has been rezoned into a residential and commercial area, and developed significantly over the past several years. With the proposed additional two drydocks operational, Seaspan anticipates an additional 100 employees distributed over two shifts.

Through the public engagement activities in 2021 and 2022, Seaspan heard concerns about:

- increased road traffic to and from the Vancouver Drydock site;
- alternative crossings of Burrard Inlet for workers;
- providing parking for the public;
- road traffic during construction; and,
- accessing the site from the east (vs St. George’s Avenue).

The City of North Vancouver also requested that Seaspan provide more information on expected worker traffic and parking and participate in a traffic study.

At the request of the port authority, in spring 2022 Seaspan commissioned a traffic impact study, which is available on the [project website](#). The study examined the intersections used to access Vancouver Drydock’s site and concluded that increased traffic impacts at these intersections would be minimal, with no improvements to the road infrastructure needed.

Feedback Themes/Input	Seaspan Response
Increase in vehicle traffic on Victory Ship Way and impacts on what is an already busy three-way intersection at Victory Ship Way/St. Georges Avenue/East Esplanade.	In spring 2022, Seaspan commissioned a traffic impact study for the two intersections used to access Vancouver Drydock’s site. The study found: <ul style="list-style-type: none"> <li>• The two intersections would continue to operate satisfactorily under post-development traffic conditions. Capacity improvements would not be necessary to accommodate site traffic volumes.</li> </ul>
Overall increase in traffic in already congested area.	

Feedback Themes/Input	Seaspan Response
<p>Use an alternative access point to the east of Vancouver Drydock.</p>	<ul style="list-style-type: none"> <li>• The post-development traffic would generate, as a worst-case scenario, 52 trips in the a.m peak hour and 49 trips in the p.m peak hour.</li> <li>• Future background traffic volumes were established factoring existing traffic at 2% per year to an assumed opening year of 2024.</li> <li>• Existing on-site parking at Vancouver Drydock is sufficient to accommodate the increase in employees.</li> </ul> <p>Additionally, Seaspan was able to confirm that there is no other road access to the east for Vancouver Drydock employees.</p> <p><b>Proposed Mitigation:</b> Share the traffic study with the City of North Vancouver and collaborate with the City of North Vancouver to assist with ongoing City traffic planning efforts.</p>
<p>Opening up Seaspan parking lots to the public when there is room or building a parkade.</p>	<p>Whenever possible, Seaspan supports event organizers and vendors by providing parking for weekend special events taking place at the Shipyards. Due to the variability in size and timing of projects at Vancouver Drydock, Seaspan is unable to commit to providing parking space in its lots to the public.</p> <p>As Seaspan’s existing parking lots at Vancouver Drydock are sufficient to meet its needs for employees and contractors, there are no plans to acquire additional parking space or build a parkade.</p>
<p>Work with the City and District to find an alternative crossing of Burrard Inlet for those that commute to North Vancouver.</p>	<p>Seaspan endorses the efforts of North Vancouver municipalities and Indigenous governments to improve transit access to the North Shore, including through the <a href="#">North Shore Connects</a> initiative which advocates to bring rapid transit to North Vancouver, making public transit a viable alternative for more employees.</p>
<p>Provide a water taxi service for employees.</p>	<p>Seaspan actively encourages active transportation modes to reduce employee vehicle travel to the site, and instead using the nearby convenient transit services. Secure bike racks are provided within the site and are available for all employees. Currently, Seaspan is not contemplating offering a water taxi service for employees.</p>

<b>Feedback Themes/Input</b>	<b>Seaspan Response</b>
Traffic during project construction causing congestion in North Vancouver and on bridges.	During project construction, the new drydocks and work pontoon would be transported on water to Vancouver Drydock's site fully assembled. Access to the area and most of the project work will be from the water, on barges and/or other vessels, and thereby result in little to no increase in traffic. The staging area will also be entirely based on the water.