

### Opportunities

- Improve the existing habitat by stabilising beach sediments.
- Increase biodiversity by creating new habitats and colonisation opportunities.

2006



Loose cobble is unstable; only a few species are able to colonise it, such as green algae. Large, stable boulders provide habitat for a range of species. Subtidally, kelp was found wherever substrate was sufficiently large and stable.

### Achievements

- Boulders positioned along the shoreline provide attachment points and habitat for algae, invertebrates and fishes, and encourage the expansion of nearby kelp beds.

2010



Habitat boulders were placed along the intertidal zone to create habitat for various species including algae, barnacles, mussels. Subtidal boulders provide attachment opportunities for kelp, creating valuable habitat for fishes and invertebrates, who rely upon it kelp beds for feeding, breeding and refuge from predators.



### Opportunities

- Improvement of the ecological and aesthetic value of the Seawalk by recreating natural habitat.
- Connect the newly constructed trail and nearshore developed areas with the shoreline.

2009



The riparian fringe is an important natural habitat, it acts as a protective buffer between the sea and the land, provides important habitat for many animals, traps terrestrial pollutants, stabilises sediments, and helps cycle nutrients into the intertidal zone. Riparian habitats are a key feature of a self-sustaining shoreline.

### Achievements

- Creation and expansion of riparian habitat along the upper shore to improve ecological value.
- Physical connection of the trail to the shoreline and improved aesthetic value.

2010



As the new shoreline path was built an intertidal bench was created, expanding the area available for the existing patchy riparian vegetation. Suitable habitat was increased by the addition of fine sediments and soils in which the dune grass and other riparian species already present, could grow. The riparian habitat attracts insects and birds and provides biological material to the shoreline.



### Opportunities

- Encourage public interest in the local natural environment, especially the shoreline.
- Foster public stewardship of the coastline through engagement with their surroundings.

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Public access to the shoreline was restricted by various physical and visual barriers throughout the site that disconnected both the Seawalk and the public from the shoreline. By removing these barriers and restoring the connection between the Seawalk and the foreshore it is hoped that the public will have more opportunity to engage with the local environment.



### Achievements

- Improvement and creation of physical and visual access to the local environment.
- Development of space and opportunities for public engagement with the habitat.

2010



Physical and visual access to the shoreline was restored by the creation of the trail and riparian habitat between 16th and 15th, the provision of facilities such as the viewing deck at John Lawson park, and the creation of additional beach access points. Further enhancement works are planned for the future. It is hoped that these features will help foster an increased sense of public stewardship over the site and the shoreline.



### Opportunities

- Reconnect the public with the shoreline by providing improved public access to the beach.
- Improve the continuity of the Seawalk, and public amenities, between 15th and 16th St.

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The Seawalk was cut off at Ambleside Millennium Park with a street detour through a busy parking lot, connecting to John Lawson Park. Properties backed directly onto the shoreline restricting access to the beach to entry points from the sea wall at the Millennium Park and the path at Lawson Pier.

### Achievements

- Creation of a trail along the upper shore, connected to the beach by riparian habitat.
- Improvement of public access to the beach, shoreline, piers and parks across the site.

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Construction of a new trail stretching from Millennium Park to John Lawson Park provides safer pedestrian access along the upper shore. The trail is bordered by a natural riparian habitat and sloping shoreline. The development of the trail allowed for the expansion of public spaces and amenities across the site.



### Opportunities

- Reduce beach erosion and the associated costs of ongoing infrastructure and habitat repair.
- Prevent the need for continuous, artificial beach nourishment while softening the shoreline.

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Certain areas of the beach between 15th Street and Ambleside have experienced heavy erosion of fine sediments leaving a pebble and cobble beach. Hard-faced concrete seawalls protecting shoreline developments are themselves compromised and damaged by wave action and erosion.

### Achievements

- Use of boulders to protect the shore and guide and trap sediments on the beach.
- Restoration of a self-sustaining and naturally protective shoreline.

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Boulders, tombolas and wave trips roughen the shoreline, providing protection from waves and trapping fine sediments on the upper shore.



By recreating a natural rocky shoreline these enhancement features provide long-term prevention of erosion and protection of the upper shore, with additional environmental benefits such as creation of valuable intertidal habitat and fish habitat.



## Summary

There has been a high degree of erosion at Lawson Pier, as with Lawson Creek. The purpose of this project was to provide shoreline protection, enhance the biodiversity of the intertidal zone and stabilize the existing sediments for riparian habitat, algae and invertebrates.

## Status

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### Public Amenities

- Public Access



### Economic Benefits

- Beach Stabilization



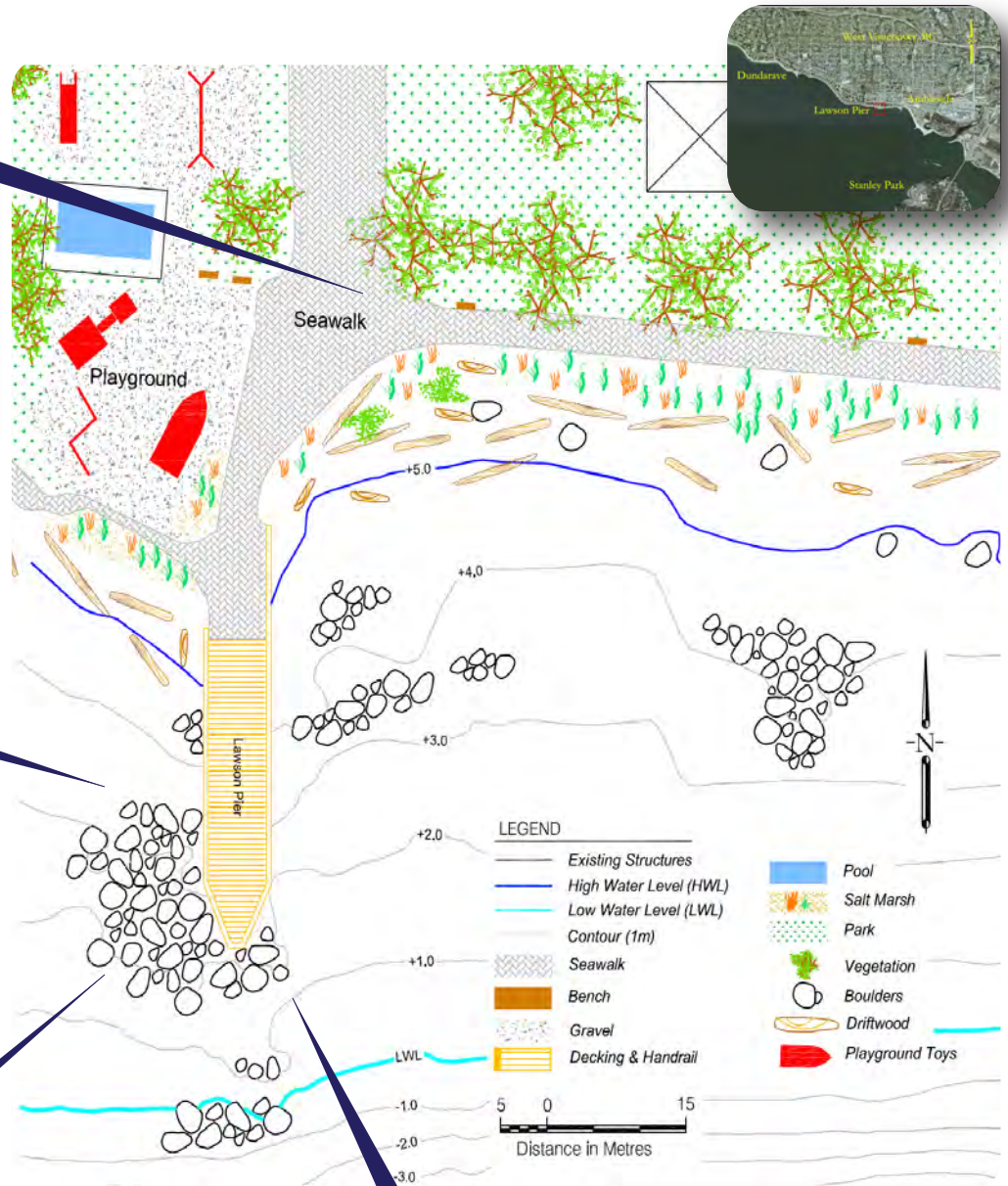
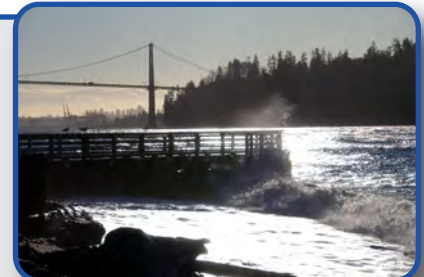
### Habitat Development

- Habitat Boulders



### Shoreline Protection

- Wave Trips
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### Opportunities

- Prevent small, unstable substrate from being swept out to sea by waves and currents.
- Encourage natural deposition of sediments, replenishing and building the beach profile.

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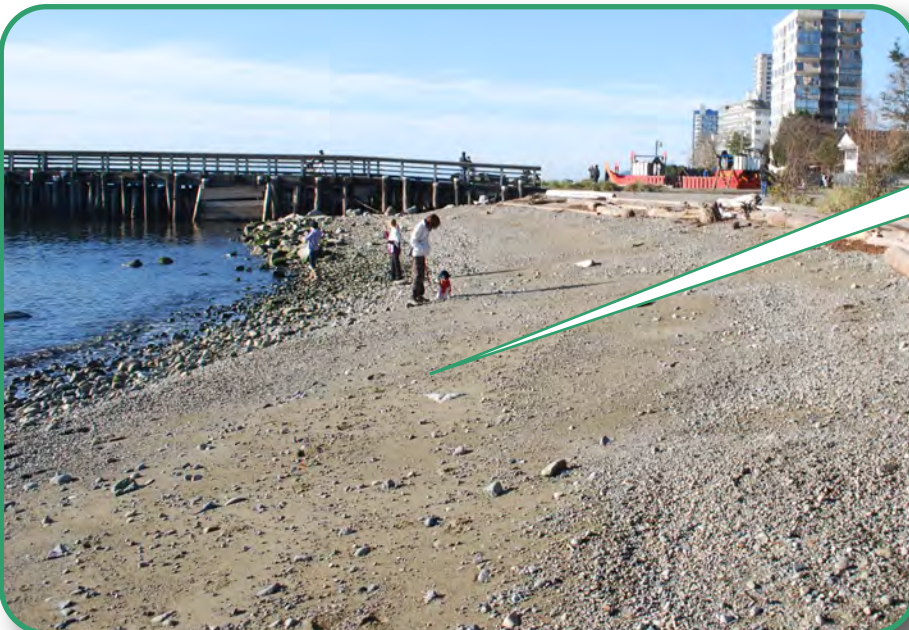


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### Achievements

- Patches of boulders create tombolas, which guide and trap sediments on the beach.
- By trapping sediments, tombolas increase the beach profile and provide long term benefits.

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- Implement natural sea defences that will have long term benefit.

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### Achievements

- Boulders positioned along the lower shore trigger waves and diffuse their energy.
- These 'wave trips' act like a natural rocky shore and provide long-term protection.

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Boulders partially buried along the lower shore 'trip' waves, triggering them to break and their energy to dissipate before they reach the upper shore. Wave trips act like a natural rocky shore line, reducing the power of waves at the lower shore and protecting the sediments on the beach. They provide a long term, natural solution to erosion.



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### Opportunities

- Reconnect the public with the shoreline and creek habitat by providing better access.
- Improve the continuity of the West Vancouver by providing access through the site.

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Reconnecting the seawalk to the shore by replacing the existing hard-faced sea wall with a natural sloping shoreline improve public access to the beach. Creating pedestrian access through the site, to the playground, pier and beach improve the public facilities and increase the continuity of the seawalk.

### Achievements

- Creation of a new pedestrian trail connecting the site to Lawson Creek and Ambleside
- Elevation of the upper shore to the level of the new trail improves access to the shoreline.

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A new trail was constructed connecting Millenium Park, Lawson Park, Lawson Creek and the Seawalk. The trail created safe pedestrian access throughout the site and improved the continuity of the seawalk, allowing the public to avoid the existing street detour. The trail also improved access to the shoreline at the site.



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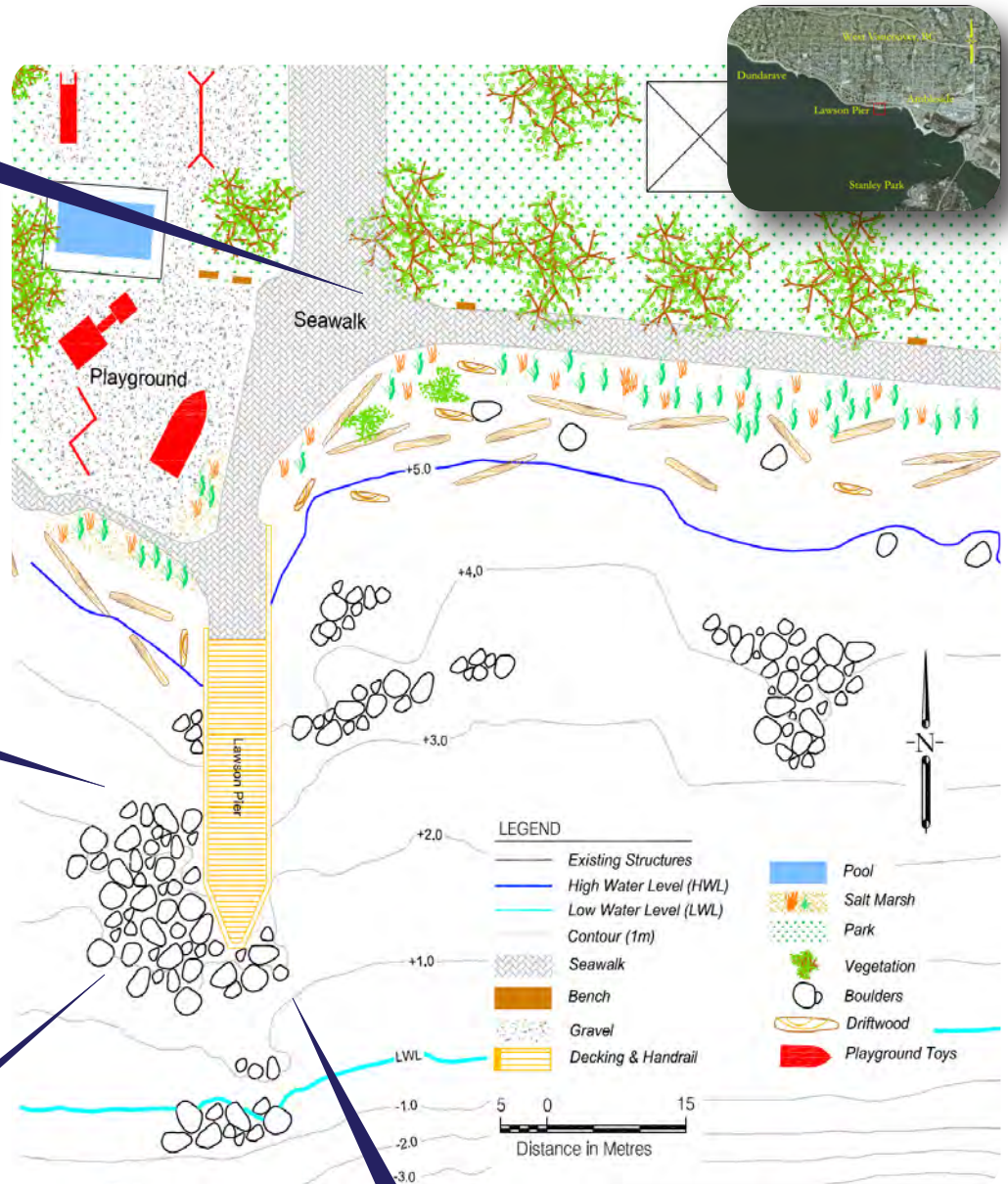
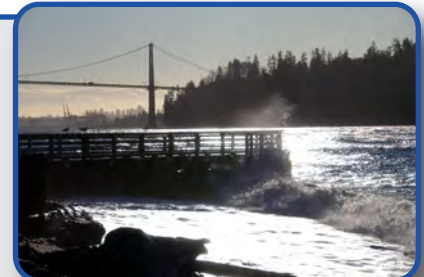
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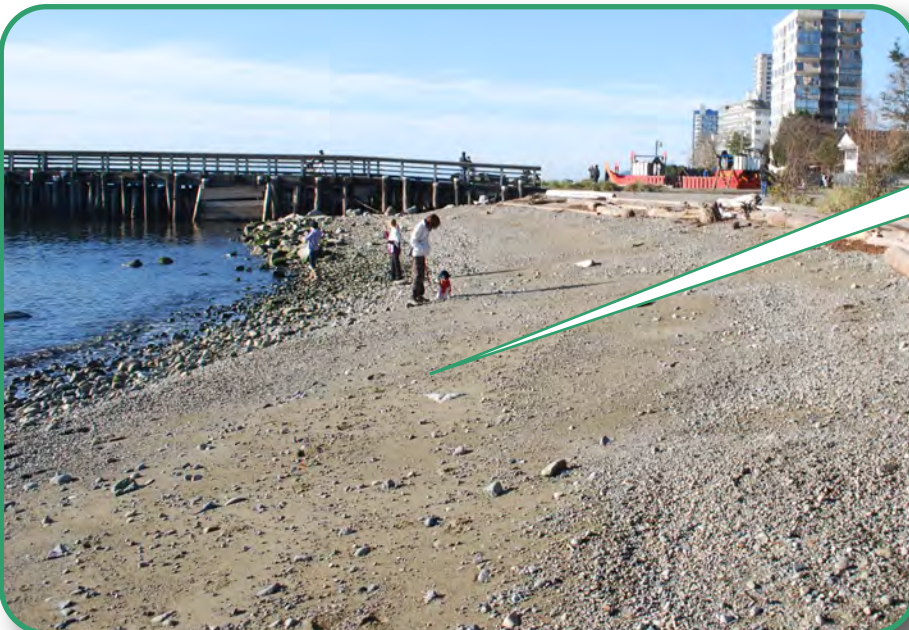


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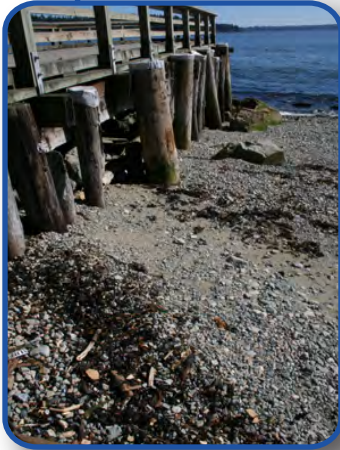
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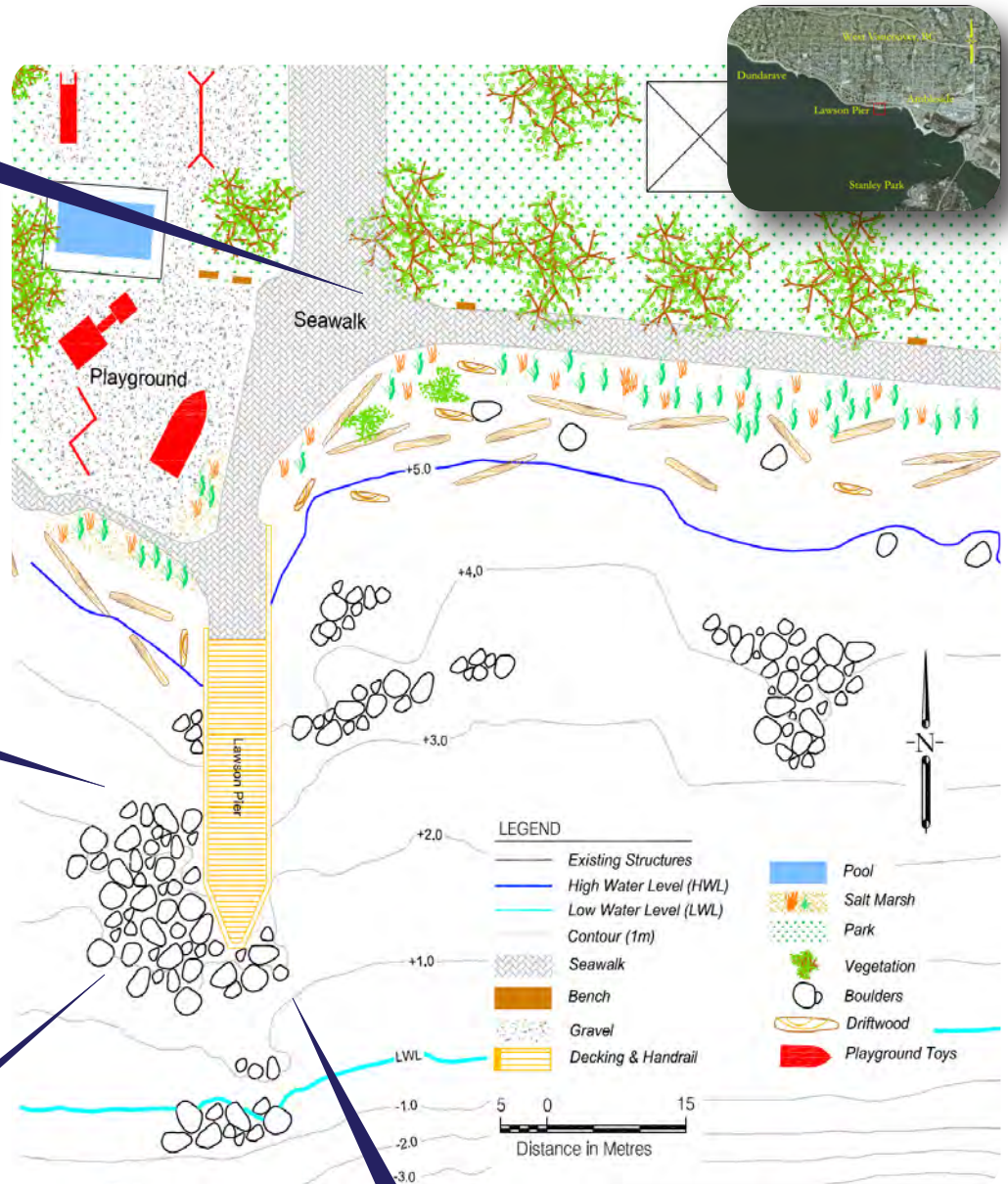
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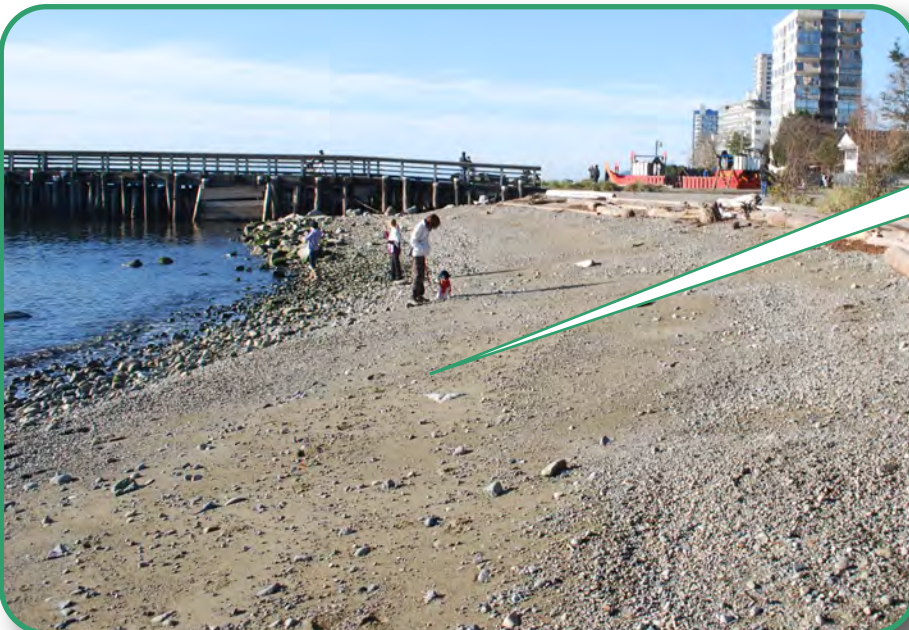


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