

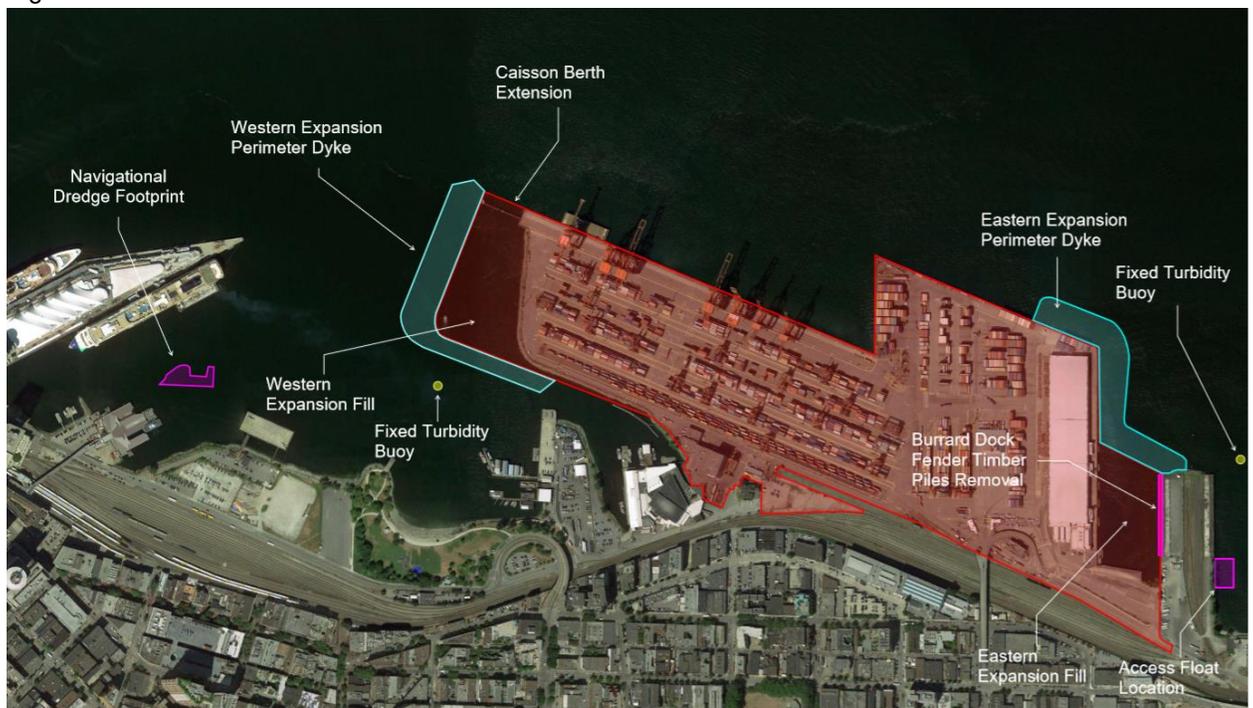
July 23, 2019

Notification of marine works – Centerm Expansion Project

On August 6, 2019, Centennial Expansion Partners (CXP) will be starting marine work associated with the Centerm Expansion Project that CXP is constructing on behalf of the Vancouver Fraser Port Authority. As shown in Figure 1 below, marine works include:

- construction of a larger wharf, dredging, rock dykes and earth fill in the west;
- dredging and rehabilitation of Ballantyne Pier with rock dykes and earth fill in the east; and,
- dredging to aid cruise ships entering Canada Place berthing in the navigational channel between Centerm container terminal, the east berth at Canada Place and the SeaBus Terminal.

Figure 1 - marine construction work areas



Prior to the start of dredging CXP will complete a marine life salvage targeting crabs and sea cucumbers for relocation away from the project work area and install three fixed turbidity monitoring buoys.

Marine work hours:

To reduce the overall impacts on fish habitat, dredging related to the expansion of the Terminal will be completed within Fisheries and Oceans Canada's (DFO) marine works window.

- Dredging is anticipated August 2019 to February 2020
- Infilling is anticipated to continue until June 2020
- Some marine works (including dredging and infilling) will take place up to 24 hours a day, 7 days a week, in order to complete the work within the window
- Marine life salvage activities will be during daylight hours
- Monitoring buoy installation will be from 7:00 a.m. to 5:30 p.m.

About the marine work:

Marine work will be performed in a manner that allows for unimpeded marine traffic operations, including container ships servicing the Terminal, SeaBus, vessels transiting to/from Main Street dock, and Canada Place cruise ship marine traffic. Work activities will be scheduled and coordinated with the Harbour Master and adjacent marine operations, including SeaBus, the Cruise Ship Terminal, and Centerm Terminal Operator.

Dredging will be conducted using a barge-mounted crawler crane with clamshell dredge, silt curtain frame and dredge barge or using a Trailer Suction Hopper Dredge (TSHD) as shown in Figure 2 below. The eastern expansion and navigation channel footprints will be dredged using clamshell buckets. The western expansion will be dredged using a combination of clamshells and TSHD.

Figure 2



Barge-mounted crane with clamshell dredge, silt curtain frame and dredge barge



Trailing Suction Hopper Dredger FRPD 309 with hydraulically controlled drag head

The clamshell dredging derrick and dredge material barge is approximately 30 m wide x 80 m long x 50 m tall (crane boom). A support tug will be stationed on site at all times to assist with barge movements when working in the vicinity of the navigation dredging. Material barges will be stored off the project footprint until they are required for the work. These will be towed in and out by tugs.

The maximum wake generated from the barge and tug, aside from other variables such as wind and tides, is less than 0.3 m assuming the tug is moving at full speed. Otherwise, no wake is generated from other activities related to the marine-based dredging work.

A survey vessel approximately 8 m in length will circle the dredge equipment and work zones 2-4 times per day to track dredging progress. While surveying, the vessel travels at approximately 2-3 knots/hour.

From dusk to dawn a flashing red light will be active on top of the crane booms flashing at a frequency of 40 flashes per minute. Booms colours will be red or yellow.

For monitoring buoy installations, a marine derrick approximately 36 m wide x 15 m long x 50 m tall (crane boom), a material barge approximately 15 m wide x 55 m long and a tug will be used to mobilize material to the installation sites. A derrick crew will install the monitoring buoys while a survey boat assists with positioning the buoys. Installations are anticipated to take three days.

A dive team of two with an operator and a surface tender will undertake a marine life salvage prior to dredging activities commencing. A dive vessel approximately 8 m in length will be used to support divers for the duration of the salvage which is expected to take two-three days.

All crews will be monitoring VHF Channel 12.

A Navigational Warning and Notice to Airmen will be issued to warn marine users and aviators of potential risks associated with CXP's in-water marine construction activities.

What to expect during marine construction:

During construction, nearby residents and businesses can anticipate some noise and increased light levels to support night dredging work. Other potential effects associated with marine works include elevated turbidity in marine water and disturbance to fish, marine mammals and marine birds. We are designing our work to reduce potential noise impacts and avoid or minimize excessive lighting during construction.

Measures to mitigate potential effects include, but are not limited to:

- Implementation of a Construction Environmental Management Plan
- Use of silt curtains
- Environmental monitoring, including turbidity monitoring and underwater noise monitoring
- Marine mammal observation
- Adopting Best Management Practices for construction lighting (crane boom mounted lighting that points downward)
- Modern equipment that minimizes noise to surrounding neighbours.

Marine construction activities and anticipated timing:

Marine works will be completed in five phases. Notifications will be provided prior to CXP advancing to a new phase of marine construction. The following phase one marine activities can be anticipated from August to December 2019:

Anticipated Schedule	Anticipated Activity and Location	Anticipated Hours and Work Days
August 6	<ul style="list-style-type: none"> • Mobilization to project site commences, including Burrard dock fender pile removal, marine access float installation 	7:00 a.m. to 5:30 p.m. Monday to Saturday
August 8 for approximately 3 days	<ul style="list-style-type: none"> • Fixed turbidity monitoring buoy installation – eastern and western expansion areas and north side of Burrard Inlet 	7:00 a.m. to 5:30 p.m. Monday to Saturday
August 12 - 14	<ul style="list-style-type: none"> • Marine life salvage - eastern expansion area and navigation channel 	7:00 a.m. to 5:30 p.m. Monday to Saturday
Starts August 16	<ul style="list-style-type: none"> • South dyke densification – western expansion area and, south east and north east dyke dredging - eastern expansion area 	Up to 24 hours a day, 7 days per week
September 4 – 5	<ul style="list-style-type: none"> • Dredging – navigation channel 	Up to 24 hours a day, 7 days per week
September	<ul style="list-style-type: none"> • Marine life salvage - western expansion area • Dredging and south dyke densification – western expansion area • North east dyke dredging and south east dyke rock fill - eastern expansion area 	Up to 24 hours a day, 7 days per week
October	<ul style="list-style-type: none"> • Mooring dolphin demolition - western expansion area • South dyke densification – western expansion area 	Up to 24 hours a day, 7 days per week

	<ul style="list-style-type: none"> • Sampling of navigation channel dredgeate for on-site reuse • South east dyke rock fill - eastern expansion area • North east dyke dredging – eastern expansion area • Marine life salvage – eastern expansion area 	
November	<ul style="list-style-type: none"> • Dredging and confirmatory sampling for on-site reuse – western expansion area • Marine life salvage - eastern expansion area • North east dyke dredging for on-site re-use – eastern expansion area 	Up to 24 hours a day, 7 days per week
December 2-6	<ul style="list-style-type: none"> • Dredging – navigation channel 	Up to 24 hours a day, 7 days per week
December	<ul style="list-style-type: none"> • Marine life salvage - western expansion area • DAS Dredging – eastern and western expansion areas 	Up to 24 hours a day, 7 days per week

Contact information:

CXP is committed to mitigating impacts of our marine construction activities on marine and air operators, service providers and stakeholders. We apologize for any inconvenience and thank you in advance for your cooperation and patience.

For more information regarding CXP’s marine construction activities or if you have questions or concerns, please contact CXP at 604-910-5785 or zstrand@cxp-jv.com

For more information or enquiries regarding the Centerm Expansion Project and South Shore Access Project, visit www.portvancouver.com/centerm-expansion or contact the Port Authority at 604-665-9563 or centerm.expansion@portvancouver.com.

Sincerely,

CXP Centerm Expansion Project and South Shore Access Project Team