Rock Bay Remediation Project, Stage 3, Victoria, BC

Stephen Pinto, Quantum Murray LP

Quantum Murray LP (QMLP) was contracted by Public Works Government Services Canada (PWGSC) to be the design-build Contractor for the Rock Bay Remediation Project, Stage 3 in downtown, Victoria, BC. The Rock Bay Remediation Project consists of 1.73 hectares of uplands and 2.02 hectares of harbour floor. The Rock Bay Site, owned by Transport Canada, and adjacent property owned by the BC Hydro and Power Authority, was the location of a former coal gasification facility which operated from the 1860s to the early 1950s, and resulted in extensive impacts to the site’s soil, groundwater and harbour sediments. The main waste product of the coal gasification process was coal tar, which contains a variety of contaminants from heavy metals to hydrocarbons of which many are highly toxic and known carcinogens. The contaminated sediments to be removed the third and final stage, represent some of the most contaminated sediments in all of Victoria Harbour.

The Stage 3 portion of the project is the most complicated of this remediation as it included approximately 90,000 tonnes of impacted soils and sediments, much of which were under sea water within Rock Bay. The remediation area also has two significant outfalls that drained a large portion of Victoria, into the bay. In addition, the project had a requirement for the installation of a low permeable seal to plug contaminated groundwater from flowing through a sand seam as well as extensive shoring along the property lines.

This design build project team included a variety of specialists including hydrologists, hydro-geologists geotechnical, geostuctural, and civil engineers. Each step required detailed sequencing to ensure that the strategies did not disrupt the effectiveness of the other design solutions. The design and eventual implementation of this multi-disciplinary project included the construction of a cofferdam to prevent tidal water from entering the work area, extensive sheet pile shoring along the property line to excavate 12 m below ground surface, and a robust outfall bypass piping system to reroute water at maximum rates of 16,800 L/s around the cofferdam.

Once the various geo-structural and civil structures were in place, it allowed for the eventual dewatering of Rock Bay. During this process a water treatment plant treated sediment rich water contaminated with hydrocarbons and metals. The dewatering allowed the excavation and removal of the impacted soils and sediments. The contaminated sediments were removed from site via barge and trucks for thermal desorption treatment and eventual disposal. The project, located within a densely populated urban area, also had an extensive air quality sampling and management program for particulate, contaminants and odours. The project is scheduled to be complete by December 2015.

Stephen Pinto
Stephen Pinto, B.Sc., EP, P.Ag., is QMLP’s Regional Manager for Vancouver Island. He has over 17 years of environmental experience conducting environmental site investigations, reclamation and remediation across British Columbia, Alberta, Ontario and Nova Scotia. The last 11 years Stephen has played key roles on large scale remediation projects including the Sydney Tar Ponds Remediation Project, Devco Mine Closures, the Port Granby Low-Level Radioactive Waste Management Project and Stage 1 and 2 of the Rock Bay Remediation Project, Victoria, BC. Currently he is the Project Manager for Rock Bay’s Stage 3 Remediation. Stephen joined QMLP after overseeing the successful stabilization and solidification of approximately 1 million tonnes of coal tar impacted sediment on the former Sydney Tar Ponds site.