



# Stormwater Solution For YVR Employee Parking Lot

**OWNER****CONTRACTOR****LOCATION**

YVR - Vancouver International Airport  
Urban Systems Ltd., Hexcel Construction Ltd.  
Richmond, BC

Armtec is proud to have been chosen as the supplier of 1,400mm diameter Polymer Coated CSP Detention Tank, CSP Manholes, and Pro-Eco-Lite headwall for the construction of the North Service Road employee parking lot at YVR.

**BACKGROUND**

YVR services more than 17 million passengers each year and is ranked one of the top airports in the world. Looking to move beyond their current airport operations, YVR has announced plans to build a 460,000 ft<sup>2</sup> designer brand retail outlet with over 200 shops.

In order to accommodate this new retail space, the Vancouver Airport Authority needed to relocate the employee parking lot to North Service Road and Aviation Avenue. Urban Systems Limited was chosen by the Vancouver Airport Authority to design the new parking lot.

**TECHNICAL DETAILS**

- 1,400mm diameter polymer coated CSP detention tank
- CSP manholes
- Pro-Eco-Lite headwall

Their designs called for a 200m<sup>3</sup> storm water detention tank to maintain natural predevelopment groundwater flow. One of the design specifications was that the system would need to fit into a trench width of 4.5m and a maximum depth of 1.9m to accommodate a high water table.

It was also YVR's mandate that the storm system meet a minimum 75-year design service life. With these specifications in mind, Armtec and Urban Systems Ltd. worked together to select a CSP system that would realize the design plans:

## DESIGN

### Step One:

Selected a pipe size that would allow the system to fit within the vertical constraints while maintaining a minimum cover of 300mm for a CL-625 highway vehicle live load

### Step Two:

Determined a length of pipe that could meet the stormwater detention storage requirements

### Step Three:

Fit the system into the available 60m x 4.8m footprint.

Using the Corrugated Steel Pipe Institute "Canadian Durability Guideline for CSP Culverts", it was determined that polymer coated CSP would provide a service life in excess of the desired 75 years. The team also chose to use Armtec H-500 Huggerband couplers because of their ability to limit infiltration as well as their high pull apart resistance, which also helped ensure their 75-year service life mandate. Urban Systems and YVR compared the Polymer CSP detention tank to a precast concrete box culvert solution. Ultimately, USL selected the CSP option based on a combination of economics, speed of installation, and its ability to fit within the site area constraints.

## CONSTRUCTION

The detention tank was one of the first underground components required at the jobsite to ensure that the project was completed on schedule. The Vancouver Airport Authority purchased the tank on the condition that the structure would be delivered within four weeks. From start to finish, including preparation of certified engineered drawings, delivery was completed in three weeks six days. Installation was completed in 10 working days.

---

"We were very pleased with the quality of service and responsiveness of the Armtec team. The Armtec 1400mm diameter Polymer Coated CSP Detention Tank provided the best overall solution for this project."

**Mark Winer, P.Eng, MBA, Project Engineer**

**Find out how CSP can be used on your next project.**

**Contact us today!**



Armtec is a leading national manufacturer of a comprehensive range of infrastructure products and engineered construction solutions for customers in a diverse cross-section of industries. With operations coast to coast, we are a trusted partner for transportation, public works, forestry, oil and gas, and mining operations throughout the country and abroad. Since 1908 our commitment to quality, customer service and innovation has set the benchmark in the Canadian drainage and bridge landscape.

Call **1-800-565-1152** or visit **[armtec.com](http://armtec.com)**