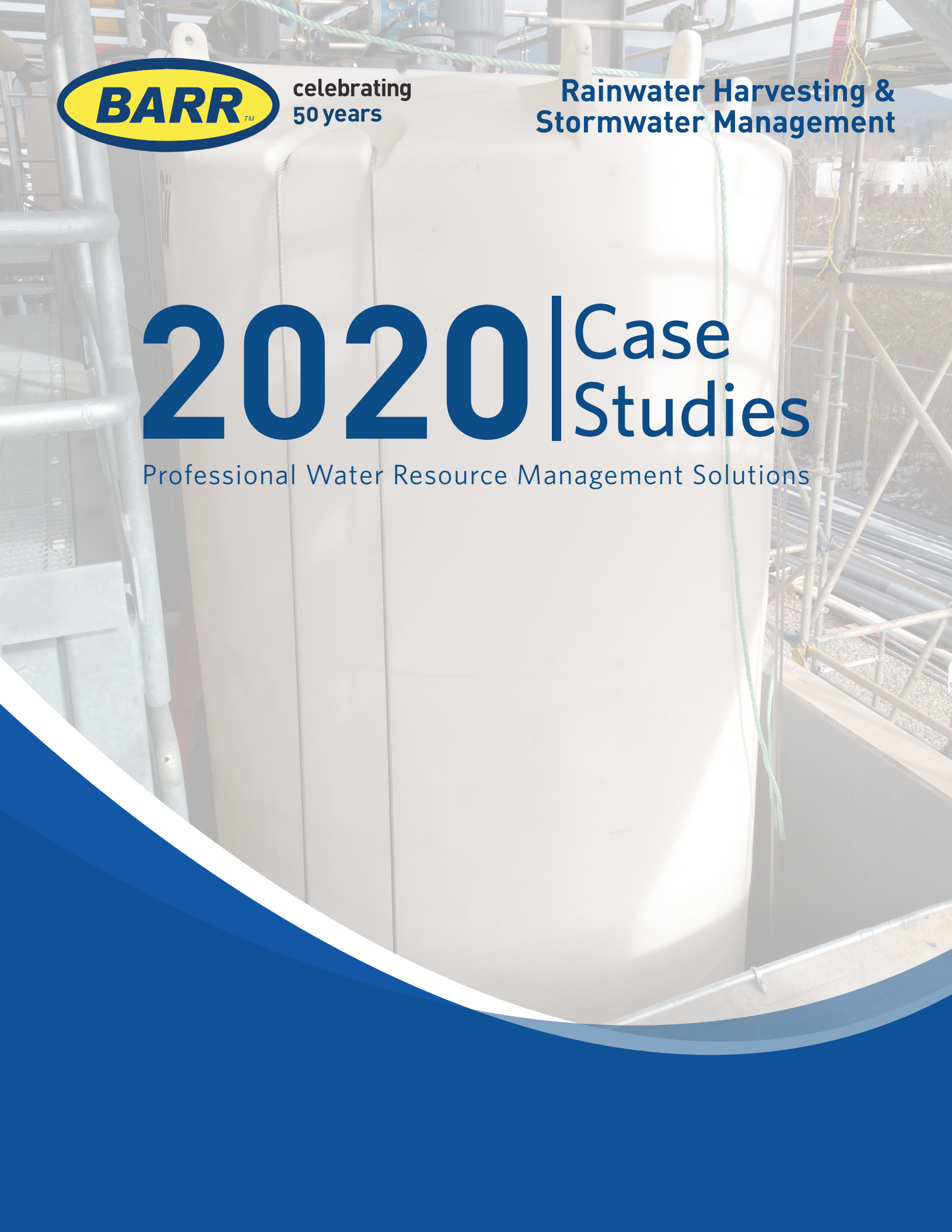
BARR

celebrating
50 years

Rainwater Harvesting &
Stormwater Management

2020 | Case Studies

Professional Water Resource Management Solutions



RAINWATER HARVESTING

Rainwater Harvesting Systems Case Studies

BARR™
1.800.665.4499
barrplastics.com

CASE STUDIES

Abbotsford Entertainment Centre: Rainwater Collection System

BARR supplied the main components and advised on the design and installation of a Rainwater Harvesting system to collect and clean rainwater to be used to create and maintain an ice surface for professional hockey. In its first full season of use, over 1 million litres of water was collected and used from a 12,960 ft2 portion (approx. ¼ of the total roof area) of the sports centre's roof. Downspouts were diverted to the collection tank system to clean and capture 8000 gallons (30,400) for every 1" of rainfall from this surface area. High volume 32 micron GRAF External Optimax Filter System from BARR first cleans the rainwater of any visible debris and then passes through an even finer filtration system before reaching the storage tanks. The system is connected to two boilers to supply warm water to the Zamboni ice resurfacing machine. The full tanks, installed in the warm mechanical room, also absorb the ambient heat that helps to warm the water prior to entering the boilers therefore saving energy on heating the water. Global Spectrum's Dan Rubino, (the facility operator) Director of Special Projects said the company is looking at other possible Global Spectrum-managed facilities where similar rainwater harvesting systems can be installed.

Want to get serious about sustainability through rainwater harvesting?
BARR is the Canadian distributor for cost-effective and versatile GRAF systems. Check out our GRAF rainwater harvesting systems on our website:
http://e-barr.com/barrRHW

Project Team

Supplier: BARR Plastics
Installer: Saxon Mechanical Limited
Operator: The Abbotsford Mission Water and Sewer Services

Standard

SWM City Policy

BARR Product

Total capacity was 4,000 USG 15,100 L Narrow Profile Rain Water Harvesting Tanks with an External Optimax Filter

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CASE STUDIES

City of Abbotsford Public Works Yard: Custom Rainwater Harvesting System

AW 9,000 USG system comprised of 3 tanks that collects from 5000 sq. ft. roof and supplies water for filling mobile equipment and washing equipment.

In the image on the left is a carwash station for all municipal police department vehicles, with a 5,000 USG tank system collecting from a 5000 sq. ft. roof.

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Project Team

Supplier: BARR Plastics
Operator: Abbotsford Water and Sewer Services

Standard

SWM City Policy

BARR Product

Total capacity was 8,000 USG. 30,000 L Custom Rain Water Harvesting Tank with twin External Optimax Filters

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CASE STUDIES

SonBuilt Residential Development: Custom Residential Rainwater System

As part of the R-2000 Net Zero Energy Home pilot project by Natural Resources Canada, SonBuilt Custom Homes Ltd, and University Sprinklers have successfully installed the largest residential GRAF rainwater harvesting system in Canada. The nine 1,700 US gallon GRAF Carat tanks from BARR were installed belowground, connected together for a maximum storage capacity of 15,300 gallons of rainwater via a down-spout. The rain collected will be used for a variety of basic home and landscape needs, including irrigation, vehicle washing, flushing toilets, and running laundry. Similar projects under the Net Zero Energy initiative are expected to take place in the near future for approximately 20 other homes across Canada.

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Project Team

Supplier: BARR Plastics
Designer: Sonbuilt Homes
General Contractor: Sonbuilt Homes
Installer: University Sprinklers

Specifications

R2000, Net Zero Energy Home

BARR Product

GRAF Carat Storage Capacity 1700 USG x 9 tanks in series

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CASE STUDIES

SFU UniverCity Childcare, Burnaby: Custom Rainwater Harvesting System

UniverCity Childcare is the first childcare centre in the world to comply to the Living Building Challenge™, the next generation of green building requirements that goes beyond LEED Platinum. This 510m2 childcare centre addresses the considerable environmental design ambitions of the Living Building Challenge with the early childhood learning objectives of Reggio Emilio. LEED allows you to choose the credits to pursue; the Living Building Challenge is unequivocal. The SFU Childcare Centre is registered in version 1.3, with 16 design prerequisites, all of which must be met in order to achieve Living Building certification. The prerequisites are grouped into six categories: Site, Materials, Energy, Water, Indoor Quality, and Beauty & Inspiration.

By collecting rainwater in a 10,000-gallon cistern for use within the building, the storm-water run-off will be significantly reduced. Any additional run-off will be infiltrated on site and, if necessary, diverted to the community's sustainable storm-water treatment system.

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Project Team

Supplier: BARR Plastics
Architect: HCMA
Civil Engineer: AECOM
General Contractor: Ledcor
Landscape Architect: Space2Place
Mechanical Engineer: Integral Group

Specifications

Living Building Challenge
Version 1.3, Net Zero Energy

BARR Product

10,000 Gallon Custom FRP Rainwater Harvesting Tank with external Optimax Filter

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CASE STUDIES

City of Abbotsford TRADEX: Custom Rainwater Harvesting System

We worked with Abbotsford Water & Sewer Services to create an 8,000 USG ASTM rated poly tank with engineered seismic tie-downs. This custom ranwater systems collects from 48,000 sq. ft. of roof area to collect up to 1.6 million US gallons per year to flush over 30 bathroom fixtures. It was designed to meet the demands of a tradeshow day which can commonly use up to 8,000 US gallons.

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Project Team

Supplier: BARR Plastics
Operator: Abbotsford Water and Sewer Services

Standard

SWM City Policy

BARR Product

Total capacity was 8,000 USG. 30,000 L Custom Rain Water Harvesting Tank with twin External Optimax Filters

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CASE STUDIES

Aquaquest; The Marilyn Blusson Centre: Vancouver Aquarium

This $22M project adds 4,050 sq. m. of offices, gallery and exhibit spaces, classrooms and ancillary spaces to the Vancouver Aquarium. The elimination of traditional mechanical refrigeration equipment lowered energy costs by 38% compared to the Model National Energy Code for Buildings. The innovative rainwater harvesting system directs roof drains to a stormwater storage system that supplies water for irrigation and toilet flushing,ombined with low-flow plumbing fixtures. This significantly reduced potable water consumption of the building as a whole.

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Project Team

Supplier: BARR Plastics
Architect: Stantec Architecture
Contractor: Stuart Olsen Construction, Tiger Purification
Geotechnical Design: Geopacific Consultants Ltd.
Landscape Architect: Sharp & Diamond
LEED: Gold
Mechanical Engineer: Cobalt Engineering
Structural Engineer: Equilibrium Consultants

Specifications

BARR Product

10,000 Gallon Custom FRP Rainwater Harvesting tank with external Optimax filter

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CASE STUDIES

Fire Halls, Gabriola/Saanich: Emergency Water Supply System

Factory built galvanized steel tanks with epoxy lining and engineered seismic tie down systems

Gabriola: 4 - 3750 US gallon galvanized steel epoxy lined tanks for toilets, vehicle wash, and emergency water supply.

Central Saanich: 5 - 3718 US gallon galvanized steel epoxy lined tanks for toilets, vehicle wash, tanker fill, and emergency supply.

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Project Team (Gabriola)

Supplier: BARR Plastics
Architect: Johnston, Davidson Architects
Installer: Mount Benson Mechanical
Mechanical Engineer: Flow Consulting

Project Team (Saanich)

Supplier: BARR Plastics
Architect: Johnston, Davidson Architect
Installer: Kinetic Construction
Mechanical Engineer: Flow Consulting

Standard

SWM City Policy

BARR Product

Factory built galvanized steel tanks with epoxy lining and engineered seismic tie down systems.

CASE STUDIES

Munford Residence, North Vancouver: Rainwater Harvesting

The Challenge

Vancouver experienced stage 3 water restrictions in 2015. To combat this, the client chose to install a rainwater harvesting system to this modern home, with laneway addition, for landscape irrigation.

The Solution

We positioned the Graf RWH tank conveniently under the Laneway home driveway; it provides drip irrigation for landscapes to the front and back yards and two green roofs.

Project Team

Supplier: BARR Plastics
Engineer: GES Vancouver
Contractor: Architek Ltd, University Sprinklers
Builder: Hart Tipton Construction
Landscape Architect: Claire Kennedy Design

Specifications

BARR Product

Carat S 6500 L Tanks
Clean Rain Advanced

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CASE STUDIES

Maplewood Farm, District of North Vancouver: Rainwater Harvesting

Project Team

Supplier: BARR Plastics
Contractor: Modern Drainage
Designer/Engineer: District of North Vancouver Engineers

BARR Product

Rain Barrels (6)
Black Poly Tank

The Challenge

Utilize free rainwater to flushing out of duck pond on premise as well as showcasing the benefits of using rainwater harvesting in a farm setting to visitors.

The Solution

Install a 1250 IG Poly Tank in the back of the barn and 7 Graf Barrica Rain Barrels in key rain collection locations around the farm. The whole system was interconnected, equalized, and raise to let gravity to the work when the duck pond needed to be flushed.

CASE STUDIES

Kocsis Residence, Lanark, ON: Rainwater Harvesting

An off grid rural property owner installed 2 x 6500L Carat tanks outfitted with Optimax self-cleaning filter package and a Grundfos SBA-45 pump. The system will collect rainwater from the 900 sq. ft. roof of a new garage building. The water will be used to water landscaping and to supply a wash station in the garage. With 2 tanks the owner installed the filter package in one tank and the pump in the other tank to ensure ease of access for any future pump maintenance.

Project Team

Supplier: Makeway

Specifications

City Policy

BARR Product

2 x 6500L Carat S Belowground Tanks
1 x Optimax filter package
1 x Grundfos SBA-45 pump