



# Decentralized Potable Water Treatment

Modular, Scalable Systems for Municipalities  
and Private & Commercial Developments



**newterra**<sup>®</sup>

clean water. modular solutions. *simple.*<sup>™</sup>

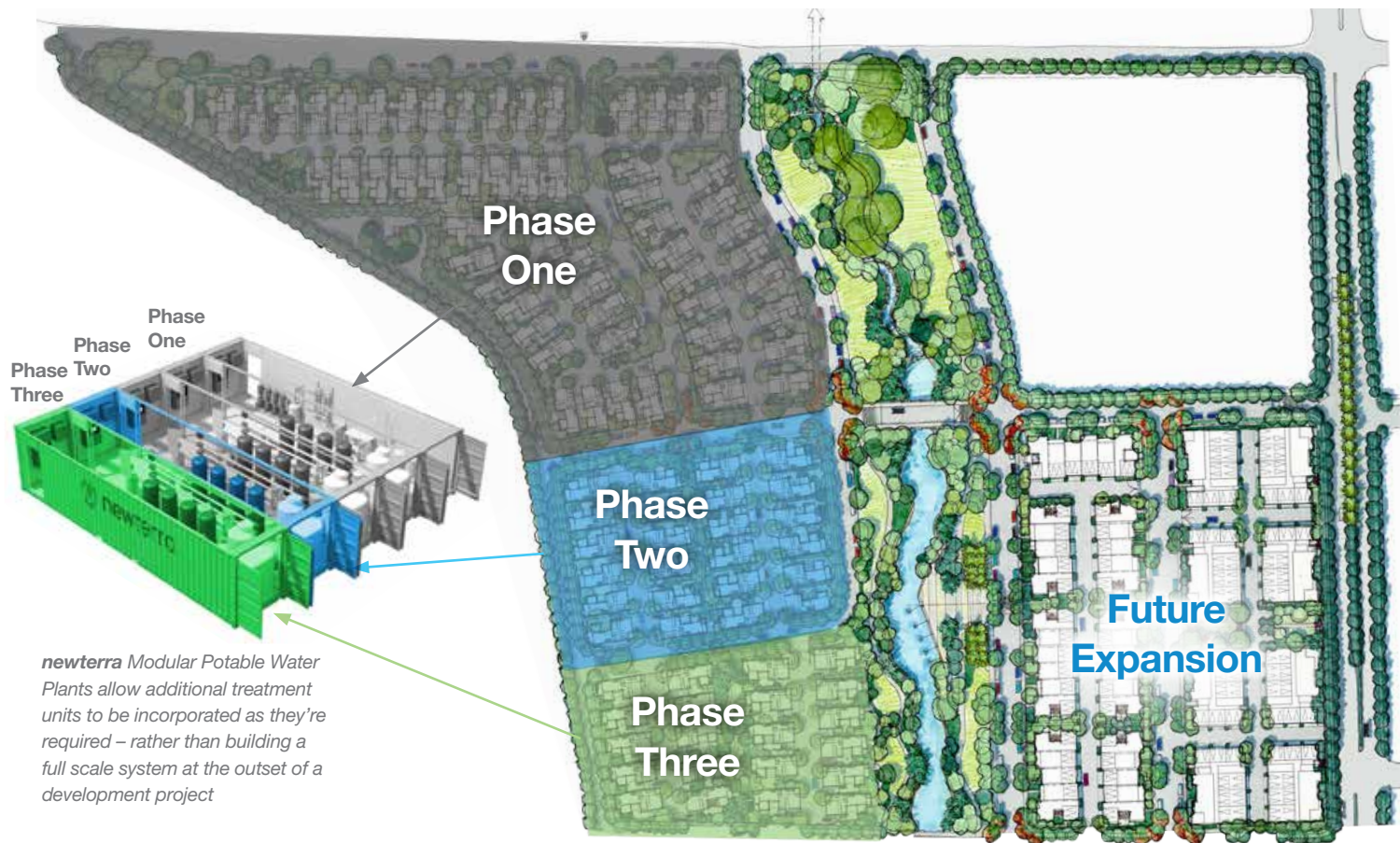


# Modular Systems That Scale Up as Your Needs Grow

## Save on Treatment Infrastructure by Adding Capacity Only When it's Required

**newterra** is pioneering innovative decentralized potable water solutions that help you reduce project costs with a sustainable treatment approach. **newterra** modular systems meet the most stringent regulatory requirements for potable water while also providing tremendous flexibility and cost deferment.

Rather than constructing a large system at the outset of a development to meet all anticipated future capacity, **newterra's** scalable systems allow treatment infrastructure to be added in stages in parallel with capacity requirements. It's a more efficient and cost-effective approach for municipalities and developers – and opens the door to alternative financing models, such as leasing.



## A Building Block Approach for Growing Communities

**newterra** treatment solutions can address the potable water requirements for a wide range of populations – from our standardized, pre-engineered systems for resorts and condominium complexes to customized systems for large residential developments.

Our potable solutions embody **newterra's** unique “building block” design. Our treatment units are modular to accommodate different treatment technologies, and are scalable – allowing additional units to be added in stages as they're required.

Our self-contained systems also provide a cost-effective approach to expanding the capacity of existing water treatment plants.



*newterra is a global leader in modularizing treatment systems – including compact, scalable solutions for potable water treatment using proven technology.*

## Modular Design Minimizes Site Work

**newterra** treatment systems are available in a number of configurations to suit your site requirements and allow fast integration, commissioning and operation:

- Fully packaged, self-contained units
- Skidded units for incorporation into an existing or new facility



All **newterra** systems are fully plumbed and wired to expedite set-up on site. Prior to leaving our MET-certified facility, they undergo comprehensive hydraulic, electrical and controls testing.



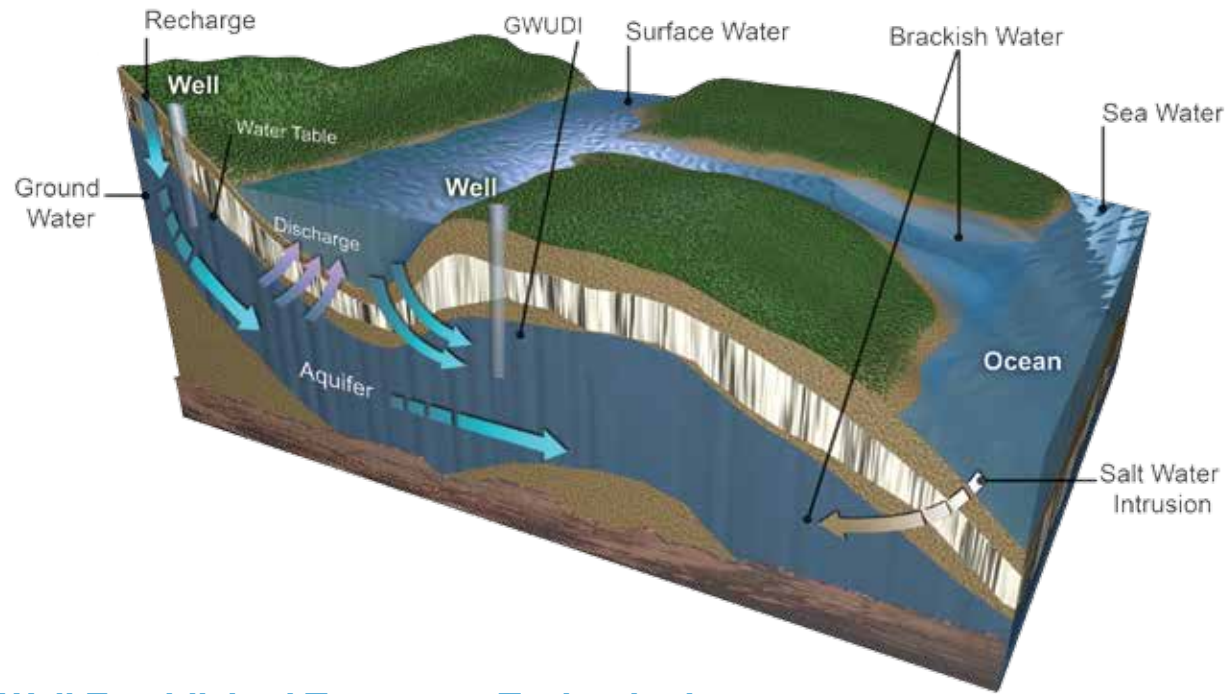
*Our modular treatment technology allows rapid installation. newterra systems can be incorporated in existing or new buildings, or be self-contained with and without facades that allow them to aesthetically fit in with their surroundings.*



# Proven Treatment Technology for Safe, Reliable Potable Water

## A Wide Range of Water Sources

Source water chemistry and characteristics vary widely – even in regions of close proximity. Groundwater is a common source of potable water. Typically starved of oxygen and rich in dissolved minerals, groundwater often requires very different process steps than surface water to ensure a highly polished, aesthetically-pleasing finished product.



## Well Established Treatment Technologies

The technologies for treating potable water are mature and well proven. Their application is highly dependent on the source water characteristics. **newterra** has decades of experience designing and manufacturing systems that utilize these technologies to treat water from a wide range of sources.

High Quality Groundwater	Typical Surface Water	Groundwater with High Inorganics	Brackish Well	Seawater
Primary Disinfection	Screening	Aeration Tank	Aeration Tank	Screening
Secondary Disinfection	Coagulation	Chemical Oxidation	Chemical Oxidation	Chemical Oxidation
	Flocculation	Greensand Filtration	Greensand Filtration	Coagulation
	Clarification	Dechlorination	Dechlorination	Flocculation
	Filtration	Cartridge Filter	Cartridge Filter	Dechlorination
	Primary Disinfection	RO/NF	RO	Cartridge Filter
	Secondary Disinfection	Primary Disinfection	Remineralization	RO
		Secondary Disinfection	Primary Disinfection	Remineralization
			Secondary Disinfection	Primary Disinfection
				Secondary Disinfection

## How We Safeguard Your Water

**newterra** treatment solutions provide abundant potable water that meets the most stringent regulatory requirements. Our systems incorporate highly effective treatment technologies and built-in redundancy for an additional measure of safety. Below are some of the technologies we utilize:



### Oxidation-Filtration:

Water passes through a large filter consisting of a packed bed of specially formulated filter media. The media that is often used for potable water treatment is a naturally mined form of glauconite greensand or a synthetic alternative. A special coating of manganese oxide on the greensand oxidizes compounds in the water.

**Removes** iron and manganese – compounds that can cause “rust” stains in laundry, bath tubs, sinks and toilets



### High Pressure Membranes (Reverse Osmosis (RO) or Nanofiltration (NF)):

These two membrane filtration technologies work in a similar way; water is forced under pressure through semi-permeable membranes to remove dissolved elements from the water. The primary differences between RO and NF are the types and amounts of dissolved minerals they reject.

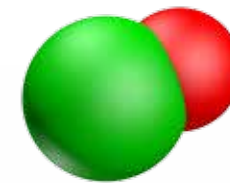
**Removes** colour and hardness that can result in scaling, taste & odor causing compounds, and dissolved salts



### Ultraviolet (UV) Treatment:

When water passes by ultraviolet light, specific wavelengths of UV energy penetrate bacteria, viruses and protozoa in the water, rendering them unable to reproduce and, therefore, harmless.

**Removes** threat of illness-causing organisms, including *E. coli*, *Cryptosporidium* and *Giardia*



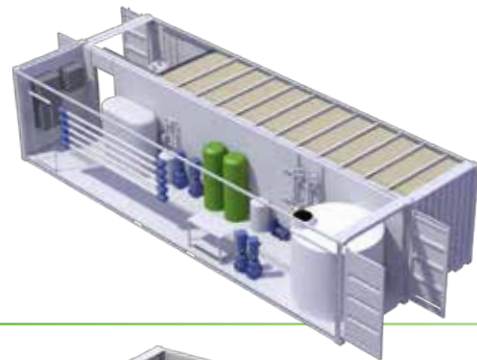
### Chlorine Disinfection:

The addition of a small amount of chlorine to the treated water provides primary disinfection as well as residual protection against microbial contamination as the water travels to homes and businesses.

**Removes** risk of recontamination by bacteria, viruses and protozoa

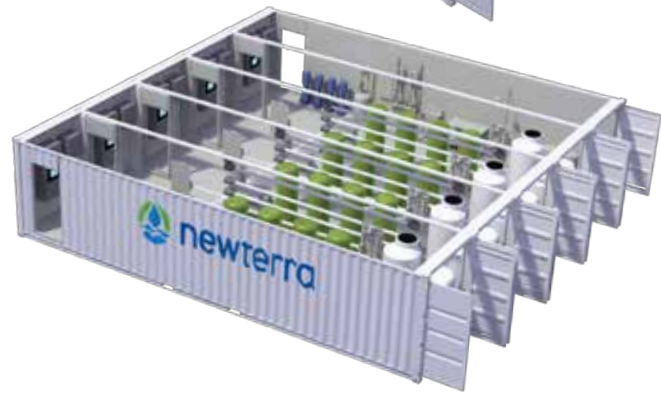
## Engineered for Efficiency & Expansion

**newterra** offers a range of pre-engineered, self-contained treatment systems that simplify and expedite the process of providing potable water to small communities, resorts and other developments. These modular systems offer cost-effective treatment – regardless of the water source – and accommodate additional treatment units as capacity requirements grow.



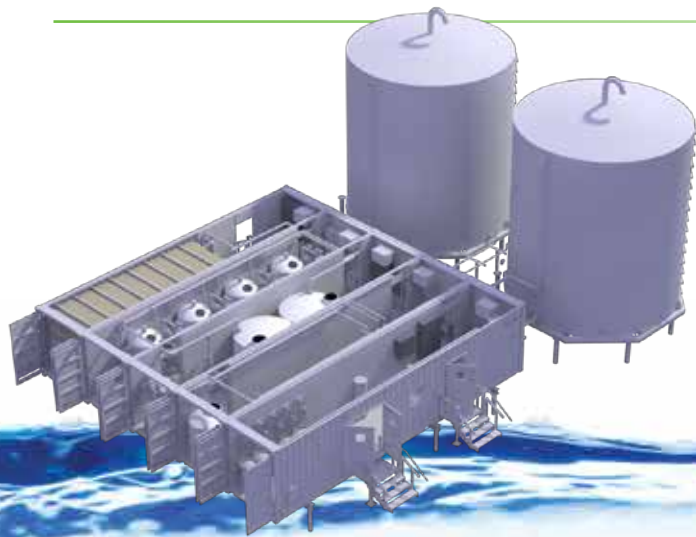
### PWT-12/50 Potable Treatment System

For populations of 35 to 200 people, the **newterra** PWT-12/50 offers optimal flexibility. The base 40' unit is a fully self-contained potable water treatment plant with capacity for up to 50 people. Supplementing the base system with an MSU-38 Modular Storage Unit expands capacity significantly, providing sufficient potable water for up to 200 people.



### PWT-125 Potable Treatment Mini Train System

For developments with peak populations between 500 and 2,000 people, the **newterra** PWT-125 offers tremendous expansion capacity. The base, 500-person system consists of two 40' containerized elements – a discrete distribution/disinfection unit and a treatment unit. Up to three (3) additional treatment units can be added, providing potable water treatment for 2,000 people. The system is designed to integrate with separate tanks for water storage.



### PWT-500 Potable Treatment Large Train System

When populations are expected to exceed 2,000 people, **newterra's** modular PWT-500 employs 40' containers dedicated to a specific, complimentary treatment process (e.g. greensand filtration, nanofiltration, etc.). This is a more efficient approach to addressing source water variability. Individual containerized treatment units have a 500 m<sup>3</sup> capacity (136,085 US gal) and are interconnected to provide the complete treatment process train.

## Built for the Extremes

**newterra** earned its reputation for robust, reliable solutions by building treatment systems designed for the harshest climates on the planet. Our systems have proven themselves at the work camps of Fortune 500 resource companies around the world – in the frigid conditions of the Arctic, high up the mountains of Chile, and in the tropical heat of central Africa.

Those extremes have been our training ground for designing, engineering and manufacturing modular systems that provide effective treatment with minimal maintenance or operator involvement.



## Designed for Easy Operation

Whether you run your system, or contract **newterra** to oversee it, our treatment solutions are designed with operators in mind. That includes automated system control and our SiteLink technology that allows remote monitoring, operation and data logging of treatment parameters for regulatory reporting.

Our Operations team participate in the design of our systems – providing a very important perspective in terms of simplifying everything from direct operation to taking water samples to routine maintenance. This is a distinct advantage of **newterra** potable water treatment solutions.





# About newterra

## A Global Water Technology Leader

**newterra** is recognized as a leader in the development of modular treatment solutions for water, sewage, wastewater and groundwater remediation for industrial, municipal, land development, commercial & residential markets. Our heritage of innovation in providing clean water solutions dates all the way back to 1863. Over that time, **newterra** has grown to over 200 people and we've installed thousands of treatment systems – some of which operate in the most extreme conditions on the planet.

## Full Control from Start to Finish

At **newterra**, we take full control of virtually every aspect of the treatment systems we build – from process design and engineering to manufacturing, installation, operations and ongoing parts & service support. That also includes manufacturing our own MicroClear® UF membranes in **newterra's** ISO 9001:2008 certified facility. This award-winning approach ensures **newterra** treatment systems meet our high standards for quality and on-time delivery.

**200+**  
Employees

**40+**  
Professional  
Engineers

**10,000+**  
Installations  
Worldwide

**CANADA'S  
BEST  
MANAGED  
COMPANIES**  
Platinum member

2015  
Global CleanTech  
**100**  
TOP-100 COMPANY  
CleanTech

