

# PRECAST CONCRETE PIPE

## PRESERVING OUR GROUNDWATER

Throughout the world, concrete pipe is instrumental in helping to convey sanitary wastewater and stormwater while preserving the surrounding groundwater quality. Concrete pipe is available in a huge variety of shapes and sizes. The flexibility and modularity of concrete pipe make it possible to meet the needs of any sanitary wastewater or stormwater project. This proven performance and modularity demonstrates why precast concrete is the material of choice for piping projects.

### WHY PRECAST CONCRETE?

- Superior strength and durability
- High degree of quality control
- Availability and ease of installation
- Environmentally friendly
- Concrete mass resists buoyancy
- Corrosion resistant



QUALITY | VALUE | PERMANENCE

# PRECAST CONCRETE PIPE

Precast concrete pipe has many advantages over competing materials.

## **SUPERIOR STRENGTH**

The strength of concrete gradually increases with time. Other materials can deteriorate, experience creep and stress relaxation, lose strength and/or deflect over time. The load-carrying capacity of concrete is derived from its own structural qualities and does not rely on the strength or quality of the surrounding backfill material.

## **DURABILITY**

Studies have shown that manufactured concrete products, such as concrete pipe, can provide a service life in excess of 100 years. For severe service conditions, additional design options are available that can extend the life of the concrete product. This is extremely important when calculating life-cycle costs for a project.

## **HIGH LEVEL QUALITY & UNIFORMITY**

Concrete pipe is produced in a plant-controlled environment using repeatable processes. The design and manufacture of concrete pipe is covered by many ASTM International Standards to help ensure quality:

- ASTM International C 14, "Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe."
- ASTM International C76, "Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe."
- ASTM International C443, "Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets."
- ASTM International C497, "Standard Test Method for Concrete Pipe, Manholes Sections, or Tile."
- ASTM International C506, "Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe."
- ASTM International C507, "Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe."
- ASTM International C655, "Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe."
- ASTM International C990, "Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants."

For more information on precast concrete pipe, please contact:

## **WATERTIGHTNESS**

Concrete products manufactured in a quality-controlled environment are watertight. Standard watertight gaskets and sealants are formulated to adhere to concrete, making multiple-seam structures commonplace.

## **EASE OF INSTALLATION**

Because concrete pipe is manufactured well in advance, it is ready for transportation to the job site at a moment's notice. Concrete pipe can be quickly installed using a crane and a small crew.

## **BUOYANCY**

With a specific gravity of 2.40 and superior frictional resistance, concrete pipe resists the buoyant forces associated with underground construction better than all other pipe materials. Alternative materials such as HDPE have lower specific gravities, causing potential buoyancy problems.

## **FIRE RESISTANCE**

Concrete pipe is noncombustible. Materials other than concrete and steel are flammable and/or do not perform well at elevated temperatures. Fiberglass begins losing structural integrity at 200 F; HDPE begins to melt at 266 F.

## **MODULARITY**

Because of the modular nature of concrete pipe, piping systems of nearly any size can be accommodated. Precast concrete pipe is designed and manufactured for simple connection to reduce installation time.

## **CHEMICAL RESISTANCE**

Concrete is resistant to most substances. Concrete pipe can be designed to withstand anticipated corrosive agents.

## **AVAILABILITY**

With thousands of manufacturers throughout North America, precast concrete pipe can be ordered from most cities and regions. Precast pipe is produced in advance and readily available when needed at the job site. This ensures a competitive market and a ready supply.

## **ENVIRONMENTALLY FRIENDLY**

Besides water, concrete is the most frequently used material on earth. It is nontoxic, environmentally safe and composed of natural materials, so groundwater quality is not affected after installation.



**NPCA**

Precast ... The Concrete Solution