

C-Drain<sup>™</sup>



## THE PROBLEM

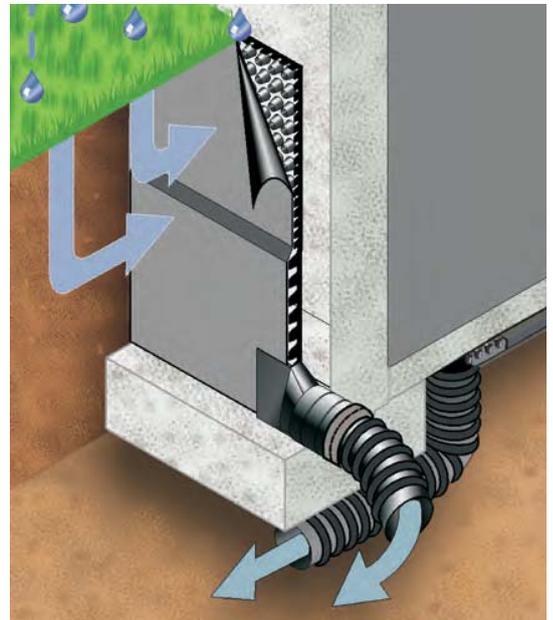
Since historic times, civil engineers and builders have used crushed stone (aggregate) or a combination of stone and some sort of pipe for soil drainage. While providing reasonably satisfactory results, aggregate drainage has several drawbacks. Clean and properly sized material is often expensive or not readily available. Transportation is expensive due to weight and volume. Quality control requires close monitoring of material and construction. Waterproofing materials have to be protected from damage from the aggregate and installation equipment. Aggregate tends to clog with soil over time, thereby reducing drainage capability. Despite great care in the design and construction of aggregate drains, their limitations often result in increased hydrostatic pressure, which increases loads on the structure and allows moisture intrusion into the structure.

## THE SOLUTION

Prefabricated drains have two components that act as replacements to the aggregate system

1. The geotextile replaces the aggregate for water collection and allows the water to enter the drain from one or both sides drain without clogging the core.
2. The formed plastic core replaces the pipe for transporting the collected water.

Water, which flows through the fabric and into the core, is removed in several ways depending upon the drainage situation. One of the newest methods is through the use of prefabricated combination drain, which has a larger profile core at the bottom to serve as a high-flow conduit to move water to the designated drainage exits.



# ADVANTAGES



## PREFABRICATED DRAIN ADVANTAGES

**LOW INSTALLED COST** - Combined installation and material cost is usually less than half of that for aggregate drains.

**EASY TO HANDLE AND INSTALL** - Lightweight (less than 5 oz/ft<sup>2</sup>, 0.4 kg/m<sup>2</sup>), easy-to-handle sheet drain is placed easily and quickly. No heavy equipment or skilled labor is required. Inexpensive to store and transport.

**REDUCES DRAINAGE SYSTEM SPACE REQUIREMENTS** - Thicknesses of 1/4"(6mm) and 7/16"(11 mm) require much less space than aggregate drains.

**STRONG AND DURABLE** - Crush strength of core resists damage during installation. High tear and puncture strength of fabric insures no damage during backfilling or use.

**SIMPLE INSPECTION** - Visual inspection of material and installation is easy and less time consuming.

**SUSTAINABLE DESIGN** - CONTECH products have a high recycled content, increase water efficiency, manage storm-water runoff and help effectively manage site issues.

**CHEMICALLY RESISTANT** - Both core and fabric are resistant to all naturally occurring soil materials. Optional fabrics and cores are available for unusual chemical situations.

**HIGH FLOW CAPACITY, REDUCED CLOGGING** - Structure of core provides multiple channels for vertical and horizontal water flow. Filter fabric permits high volume entry of water into core while restraining soil particles.

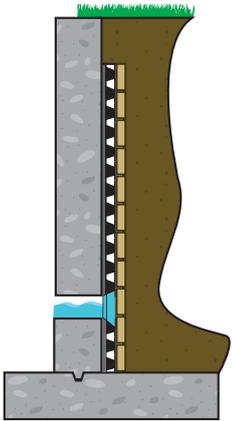
**PREDICTABLE PERFORMANCE** - Uniform properties and quality assure predictable performance.

**HOLDS REINFORCED SHOTCRETE** - Formed core provides good surface for adhesion of shotcrete and other construction materials.

# PREFABRICATED DRAINS

## C-DRAIN™

PREFABRICATED DRAINS FOR CIVIL  
ENGINEERING APPLICATIONS

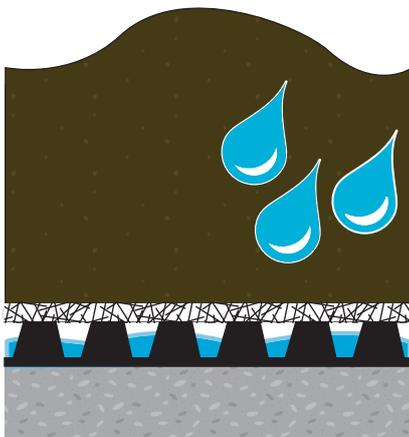


Every unique drainage challenge calls for an equally unique drainage solution. By incorporating critical design considerations into a versatile and expanded product offering, C-Drain gives our partners in civil and transportation design the power to break away from traditional limitations in both product selection and specification design.

Specially designed drainage cores that address strength and flow combined with geotextiles meeting AASHTO specifications provide the choices you need to manage the most challenging ground water conditions. C-Drain offers a cost-effective, performance-driven, sustainable alternative to pipe and stone. We work with you to factor in the many site variables that are critical to performance - existing soil conditions, core strength and flow capacity requirements. The flexibility of our manufacturing process allows us to respond quickly to specific needs and tailor solutions to any site or structural drainage application.

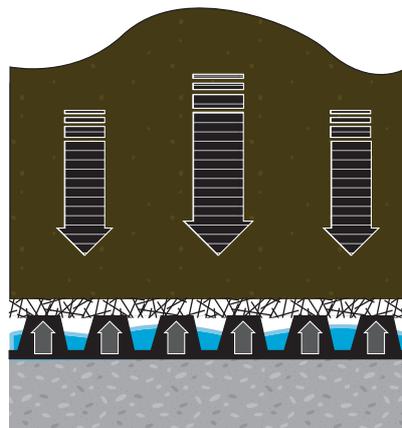
## PREDICTABLE PERFORMANCE

C-Drain products are manufactured to meet specific physical and mechanical properties that are verified by independent testing laboratories per ASTM standards, ensuring your project will “flow” according to plan. Critical design considerations typically include three basic physical properties - water flow rate, core compressive strength and the fabric’s ability to filter soil particles.



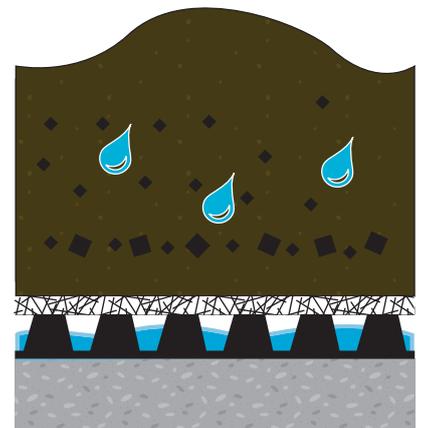
### WATER FLOW RATE:

The volume of the fluid that passes through the formed core in a specific amount of time



### CORE COMPRESSION:

The maximum compressive stress the formed core can withstand without failure.



### FILTER FABRIC:

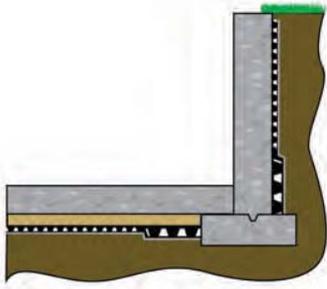
The mechanical separation of soil particles from the water that enters the core.



# CIVIL SITE & STRUCTURE SOLUTIONS

## STRUCTURAL WALLS

C-Drain Sheet drain is used on the exterior of subsurface walls to intercept ground water before it reaches the structure. Water is easily routed by the C-Drain HQ system to a discharge pipe or other designated drainage outlet. The sheet drain system reduces hydrostatic pressure buildup against walls and slab, reducing the risk of leakage and extending the life of the structure.

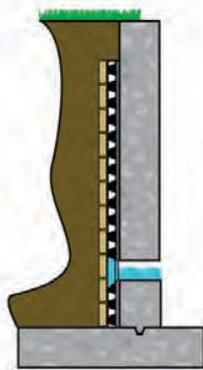


### UNDER SLABS

C-Drain Sheet drain is used under structural slabs to intercept ground water before it reaches the slab. Water is then routed to a discharge pipe, sump or other designated drainage outlet.

## LAGGING & SHORING WALLS

Where space is limited or where aggregate drainage is difficult to install, C-Drain Sheet drain provides superior drainage with a low profile, lightweight product that reduces excavation requirements.



## SHOTCRETE & GUNNITE WALLS

C-Drain Sheet drain provides effective drainage for shotcreted walls. Sheet drain provides a solid surface for adhesion of reinforced shotcrete or other construction materials.

## RETAINING WALLS:

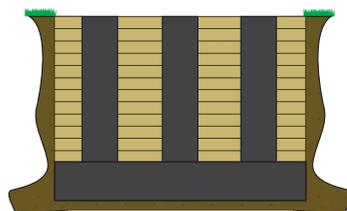
C-Drain Sheet drain reduces hydrostatic pressure from the backfill behind subsurface walls, assisting in maintaining the structural integrity of the wall from grade to footer.

## EARTH, ROCK & ROLLED CONCRETE DAMS

C-Drain Sheet drain is used to prevent seepage at the toe of the dam and as a cutoff drain within the dam. Slope stability during rapid draw down is also aided.

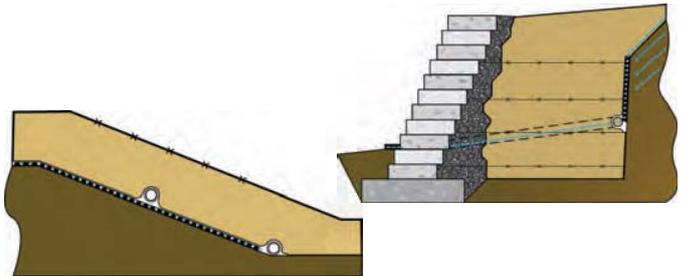
## CHIMNEY DRAINS

C-Drain Chimney drain is installed vertically in applications where full wall coverage is not practical due to protrusions in the wall surface, such as soil nails. Chimney drains may also be used in select applications where full wall coverage is not required and/or cost effective.



## EMBANKMENTS & SLOPES

C-Drain Sheet drain is used in embankment and slope drainage applications to minimize soil swelling, weakening and failure from surface and/or subsurface water sources.



## TUNNELS & BOX CULVERTS

Water can attack these structures from four directions: top, bottom and either side. C-Drain Sheet drain provides rapid removal of water to reduce hydrostatic pressure and to minimize the risk of leakage into the structure.

## POND LINERS

The installation of C-Drain Sheet or Strip drain under pond liners prevents uplift due to methane gas buildup in organic soils.

## CONCRETE CHANNEL LINERS

The installation of C-Drain Sheet drain under concrete-lined channels prevents uplift due to hydrostatic pressure, greatly reducing the risk of leakage or structural failure.

## CUT-OFF DRAINS

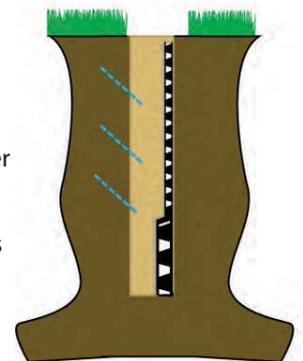
C-Drain Sheet, Strip or Combination drains are used instead of, or in addition to, aggregate to intercept, collect and transport water flow.

## FRENCH, TRENCH DRAINS

C-Drain Sheet, Strip or Combination drains are used instead of, or in addition to, aggregate to intercept, collect and transport water flow.

## PERIMETER COLLECTION DRAINS

C-Drain Strip or Combination drains are used as a direct replacement to perforated pipe and stone perimeter drain systems. Combination drains have an engineered core flange designed to connect to sheet drains to provide a complete drainage system.



## LANDFILL CAPS & UNDERDRAINS

C-Drain Sheet drain is used above landfill caps to intercept water from the surface and route it to designated drainage exits. Sheet drain is used below landfill caps and liners as a leachate collection and detection system.



CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, retaining walls, sanitary sewer, stormwater, erosion control and soil stabilization products.

*For more information, call one of CONTECH's Regional Offices located in the following cities:*

<b>Ohio (Corporate Office)</b>	<b>513-645-7000</b>
California (Long Beach)	562-733-0733
Colorado (Denver)	720-587-2700
Florida (Tampa)	727-544-8811
Georgia (Atlanta)	770-409-0814
Maine (Scarborough)	207-885-9830
Maryland (Baltimore)	410-740-8490
Oregon (Portland)	503-258-3180
Texas (Dallas)	972-590-2000

Visit our web site: [www.contech-cpi.com](http://www.contech-cpi.com)  
800-338-1122

NOTHING IN THIS CATALOG SHOULD BE CONSTRUED AS AN EXPRESSED WARRANTY OR AN IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. SEE CONTECH'S STANDARD QUOTATION OR ACKNOWLEDGEMENT FOR APPLICABLE WARRANTIES AND OTHER TERMS AND CONDITIONS OF SALE.