



Underground Stormwater Detention & Infiltration



The experts you need to solve your stormwater challenges



Contech is the leader in stormwater solutions, helping engineers, contractors and owners with infrastructure and land development projects throughout North America.

With our responsive team of stormwater experts, local regulatory expertise and flexible solutions, Contech is the trusted partner you can count on for stormwater management solutions.

Your Contech Team



STORMWATER CONSULTANT

It's my job to recommend the best solution to meet permitting requirements.



STORMWATER DESIGN ENGINEER

I work with consultants to design the best approved solution to meet your project's needs.



REGULATORY MANAGER

I understand the local stormwater regulations and what solutions will be approved.



SALES ENGINEER

I make sure our solutions meet the needs of the contractor during construction.

Contech is your partner in stormwater management solutions

Detention and Infiltration Solutions by Contech

One of the essential functions of a stormwater management system is to control the quantity of runoff leaving a site. There are various ways to do this. Common methods are detention ponds and other land based solutions.

The problem with ponds is that they take up valuable land space. This is not a major issue in rural areas, but in urban environments where land space is limited and expensive, the use of ponds is simply not an option.

Where there are competing demands for land, underground storage can provide many of the benefits of landscape-based systems but without requiring dedicated land area, thus maximizing the land value for the owner. In addition, subsurface infiltration in urban environments meets the objectives of Low Impact Development by reducing runoff and recharging groundwater.

Contech helps engineers and owners maximize land value by providing solutions for storing stormwater underground. Our underground systems offer you flexibility and customization to accommodate a variety of site conditions and storage volume requirements.



CMP Detention and Infiltration Solutions



DuroMaxx® SRPE Pipe for Stormwater Detention



ChamberMaxx® Stormwater Chamber System



Concrete Detention & Infiltration Solutions with CON/SPAN® and Terre Arch™

Corrugated Metal Pipe

The "Go To" Material for Stormwater Detention

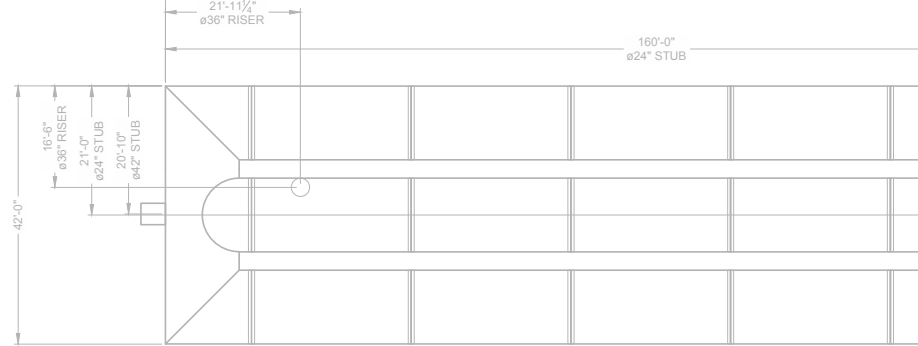


For the majority of applications, corrugated metal pipe (CMP) is the "go to" material for stormwater detention and infiltration. With its low cost, a wide variety of diameters, layout configurations and coatings, no other material can match CMP's flexibility and versatility.

- NCSPE service life guidance of 75+ years for certain materials in recommended environments. Please refer to the Corrugated Metal Pipe Detention Design Guide for additional information.
- Various pipe coatings and materials are available to accommodate site-specific needs: Aluminized Steel Type 2 (ALT2), Galvanized, CORLIX® Aluminum, and Polymeric.
- Wide range of gages, corrugations, and shapes, diameters 12"– 144"
- Pipe can be fully or partially perforated for infiltration or groundwater recharge applications
- Custom risers and manifolds provide direct access for maintenance
- Outlet control devices can be incorporated within the system, eliminating the need for a separate structure
- Customizable - a variety of fittings allow CMP to match most layout configurations
- May be designed for heavy loading and high maximum cover
- Contributes to LEED points
- Available locally; quick turnaround time
- The most economical installed solution

No other material can match the flexibility and versatility of CMP

System Sizing



APPLICATION TIPS

- Use the largest diameter pipe possible to maximize vertical storage space and minimize the overall footprint. Doing so will reduce material, excavation, and backfill costs.
- Single manifold systems are most cost effective as they reduce the amount of fabrication needed.
- Incorporating flow controls into the CMP system can reduce costs by eliminating the need for additional concrete structures.
- The Contech MOBILE PIPE® mill can be delivered to remote locations and assembled on-site for fast and cost effective steel pipe manufacturing.

DIAMETER (IN)	VOLUME (FT ³ /FT)	MIN. COVER HEIGHT
6	0.20	12"
8	0.35	12"
10	0.55	12"
12	0.78	12"
15	1.22	12"
18	1.76	12"
21	2.40	12"
24	3.14	12"
30	4.90	12"
36	7.10	12"
42	9.60	12"
48	12.60	12"
54	15.90	12"
60	19.60	12"
66	23.80	12"
72	28.30	12"
78	33.20	12"
84	38.50	12"
90	44.20	12"
96	50.30	12"
102	56.80	18"
108	63.60	18"
114	70.90	18"
120	78.50	18"
126	86.60	18"
132	95.00	18"
138	103.90	18"
144	113.10	18"

Because of its low cost and flexible configurations, CMP is the 'go to' material for stormwater detention and filtration.

DuroMaxx[®] Steel Reinforced Polyethylene

Stormwater Detention for Deep Burial and Corrosive Soil Applications ...

DuroMaxx provides the lightweight and durability of traditional HDPE with the added structural strength of steel. The combination of materials results in an extraordinarily strong and durable pipe that makes it the perfect choice for stormwater detention and infiltration in deep burial and corrosive soil applications.

DuroMaxx detention and infiltration systems can be designed with gasketed bell and spigot joints or welded coupler joints for increased watertight reliability. DuroMaxx is available in diameters ranging from 30 to 120 inches and in standard lengths of 14 or 24 feet, with other lengths available upon request.

- Twice as stiff as traditional HDPE pipe - requires less structural backfill
- Corrosion resistant HDPE - can be used in applications with corrosive soils
- Several joint configurations - welded coupler (WC), 10.8 psi high performance (HP) bell and spigot and soil tight (ST) joints available
- Up to 48 foot pipe lengths - fewer joints to assemble on site, resulting in faster installation rates.
- Lightweight - easily handled and quickly installed



Learn More:
www.ContechES.com/duromaxx-det

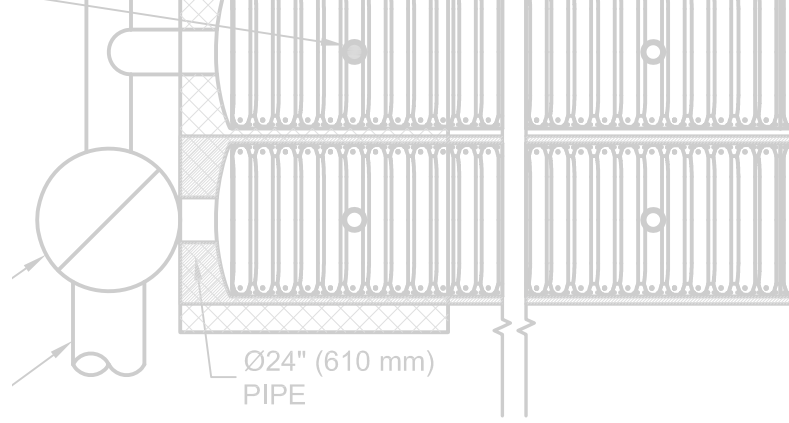
System Sizing

NOM. PIPE DIA. (IN)	GALLONS PER FOOT (GPF) OF PIPE	MIN. COVER (FT)	MAX. COVER (FT)
30	35.51	1.0	50
36	51.13	1.0	50
42	69.59	1.0	50
48	90.9	1.0	30
54	115.47	1.0	30
60	142.51	1.0	30
66	172.38	1.5	30
72	205.09	1.5	30
84	279.04	2.0	30
96	364.35	2.0	30
108	475.89	2.5	25
120	569.06	3.0	25

The combination of materials results in an extraordinarily strong and durable pipe.

DuroMaxx is twice as stiff as traditional HDPE pipe

ChamberMaxx[®] Stormwater Chamber System



Maximize Stormwater Storage in Shallow Footprints ...

The ChamberMaxx corrugated open-bottom plastic infiltration chamber system allows you to meet stormwater runoff reduction requirements and maximize available land space by providing economic infiltration below grade. ChamberMaxx maximizes storage volume in a small footprint, and its low profile shape is ideal for sights with shallow footprints.



- Low profile (30" rise) allows for infiltration on sites with shallow footprint
- Each chamber provides 47 ft³ (1.3 m³) of storage to maximize storage space
- Integrated end caps provide cost savings and added chamber strength
- Structurally designed to exceed HS-20/HS-25 live loads
- Manufactured per ASTM F2418 to provide strength and durability
- Lightweight; can be installed by hand without the need of heavy equipment

Learn More:

www.ContechES.com/chambermaxx

System Sizing

The ChamberMaxx system combines middle chambers, which are open on both ends, with start and end chambers, which include an integral end wall. Water is stored in both the chamber and in the void space in the surrounding stone backfill providing 75.1 cubic feet of storage per chamber. The ChamberMaxx system can be configured with up to 24-inch diameter (0.61 m) inlet/outlet manifold.

CHAMBER PART	WIDTH (IN) (M)	HEIGHT (IN) (M)	WEIGHT (LBS) (KG)	ACTUAL LENGTH (IN) (M)	INSTALLED LENGTH (IN) (M)	STORAGE VOLUME (CF) (M ³)	INSTALLED STORAGE VOLUME (CF) (M ³)*
Start	51.4 (1.31)	30.3 (0.77)	83.0 (37.65)	98.4 (2.50)	96.2 (2.44)	50.2 (1.42)	78.1 (2.21)
Middle	51.4 (1.31)	30.3 (0.77)	73.0 (33.11)	91.0 (2.31)	85.4 (2.17)	47.2 (1.34)	75.1 (2.31)
End	51.4 (1.31)	30.3 (0.77)	76.0 (34.47)	92.0 (2.34)	88.5 (2.25)	46.2 (1.31)	74.1 (2.10)

* 6" (152 mm) of stone above and below chamber, 5.6" (142 mm) chamber spacing and 40% porosity.

Terre Arch™ Concrete Detention and Infiltration

Modular Concrete System for Fast Installation ...

Terre Arch is a modular, multi-chambered, precast concrete stormwater storage system that utilizes a proven arch design to provide a simple solution for stormwater detention and infiltration.

Because little cover is required, Terre Arch is the best solution for sites with high groundwater tables and minimum separation between the top of the underground structure and the finished grade.

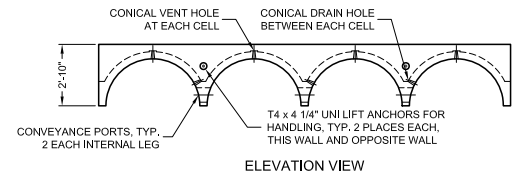
With a load-bearing rating of HS-25 (with 12" cover from the top of the arch to final grade), the system is ideal for use in parking lot applications.

- Lightweight fiber reinforced concrete
- Minimum 6,000 psi compressive strength HS-25 load rating
- No concrete foundation required (when 3,000 psf allowable bearing capacity is provided)
- 12" minimum cover above arch
- Simple and fast installation; install 30,000 - 50,000 cubic feet of storage per day
- Provides maintenance access to individual chambered rows
- Less cover required compared to plastic chambers

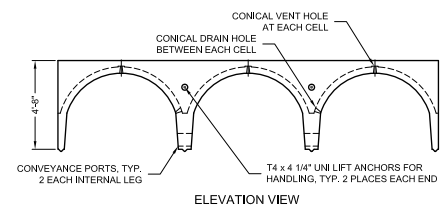


Learn More:

www.ContechES.com/terre-arch



TERRE ARCH 26 STRUCTURE



TERRE ARCH 48 STRUCTURE

System Sizing

MODEL	VOLUME*	INFILTRATION AREA	WEIGHT (APPROX.)	DIMENSIONS
Terre Arch 26	319 CF	152 SF	13,500 lbs.	8'-0" x 19'-0" x 2'-10"
Terre Arch 48	608 CF	160 SF	19,500 lbs.	8'-0" x 20'-0" x 4'-8"

* Table assumes 6" stone base for TA26 and 12" stone base for TA48, with 6" cover stone over top of arch. (40% void space typical with stone).

Terre Arch is the best solution for sites with depth constraints

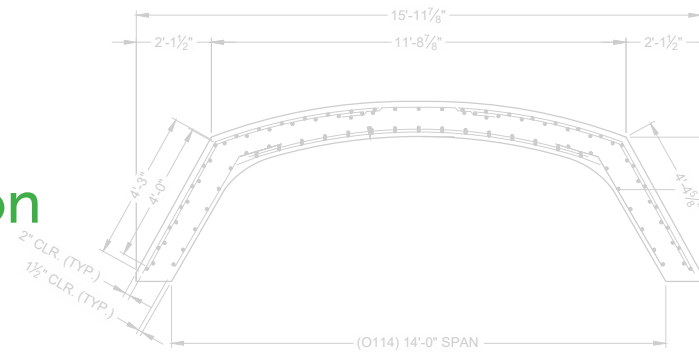
CON/SPAN® Concrete Detention and Infiltration

Large Volume Stormwater Storage ...

CON/SPAN is a modular, three-sided precast arch system designed to provide economic, large volume stormwater detention or infiltration below grade. CON/SPAN's distinctive arch top and large spans maximize storage volume and provide structural integrity.

Construction of cast-in-place strip footings beneath CON/SPAN legs and end walls allow for a large open area in the center of each cell. These cells can be filled with crushed stone or granular material to allow for stormwater infiltration or recharge. CON/SPAN can also be combined with the Stormwater Management StormFilter to provide high-volume stormwater treatment.

- Can be designed for any loading condition including HS 20-44, HS 25-44, HL-93, and AREMA (railroad) and aircraft loading
- Broad range of span & heights allow for a variety of designs
- Supplemental precast walls provide the ability to cast a wide variety of outlet openings into the system
- Base slab, strip, or pedestal wall foundations
- Rapid set-in-place installation
- Large system eases inspection and provides ample maintenance access



CON/SPAN® O-Series® Detention utilizes EXPRESS® Foundations for faster installation.



Learn More:

www.ContechES.com/conspan-detention

CON/SPAN's distinctive arch top and large spans maximize storage volume.

Protecting Detention and Infiltration Systems



Pretreatment can mean a huge difference in maintenance ...

By their very nature, detention systems are difficult to inspect and maintain. The selection of a cost-effective and easy-to-access treatment system can mean a huge difference in maintenance expenses for years to come.

It is in the design engineer's best interest to provide an aggressive pretreatment practice prior to infiltrating the water quality flow or greater flow events. Unforeseen upstream construction, erosion, annual tree debris, and winter maintenance treatments can quickly occlude infiltration facilities, putting them at risk for hydraulic failure and reducing water quality benefits.

The CDS® hydrodynamic separator is the preferred pretreatment device. CDS uses swirl concentration and continuous deflective separation to screen, separate and trap trash, debris, sediment, and hydrocarbons from runoff. CDS provides unobstructed access to stored pollutants, making it easy to maintain. Maintaining a CDS is a simple process that can be easily accomplished using a vacuum truck, with no requirement to enter the unit.

CDS is the preferred pretreatment device

Design Your Own Detention System (DYODS®)

Free, Online Tool Fully Automates the Layout Process

Design

DYODS #:	198
System Description:	Germanstown Mill Lofts
Project:	Case Studies
Application:	Detention (Solid CMP)
Created:	04/05/2016
Modified:	04/05/2016

Design Parameters

Storage Volume:	29,433 cf
Limiting Length:	185 ft
Limiting Width:	55 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	9 ft

System Selection

Application:	Detention
System:	CMP - Solid Wall

Pipe Detail

Material:	Steel
Shape:	Round
Size:	78 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Single Manifold

Calculations

Status:	OK
Barrel Count:	5
CMP Footprint:	176 x 45 ft
Length Per Barrel:	169 ft
Length Per Header:	44.50 ft
Pipe Storage:	29,516 cf
Structural Backfill Zone Storage:	0 cf
Total Storage Provided:	29,516 cf
Percent Of Required Storage:	100.28 %
Total CMP Footage:	890 ft
Approximate CMP Piece Count:	42
Approximate Coupling Bands:	41
Approximate Truckloads:	21
Total Excavation:	3,225 cy
Structural Backfill:	1,283 cy
Remaining Backfill To Pavement:	849 cy

Draftboard

Open Draftboard | Skip Draftboarding and Submit Design

Learn More:

www.ContechES.com/dyods

Quickly prepare designs for estimates and project meetings ...

Engineers are always looking for new ways to quickly prepare designs for estimates and project meetings. We have a tool that does just that... the Design Your Own Detention System (DYODS®) tool.

This free, online tool fully automates the layout process for stormwater detention and infiltration systems. You can create multiple systems for each project while saving all project information for future use.

The tool's draft board feature allows you to edit the layout of your system. The unique "drag and drop" feature allows users to add stubs and risers while customizing the site's layout to meet site specific conditions while optimizing the design.

After you submit your design, you'll receive an email that contains your customized drawings in both PDF and CAD format, storage volume calculations, and specifications.

- Optimizes design and layout for cost efficiency
- "Drag and drop" feature allows users to customize layout
- Design multiple systems per project and save for future use
- Provides instant access to customized, project specific drawings
- CAD/PDF files provided for use in creating plans and specs

A free, online tool that fully automates the layout process for stormwater detention systems.

A partner you can rely on



STORMWATER
SOLUTIONS



PIPE
SOLUTIONS



STRUCTURES
SOLUTIONS

Few companies offer the wide range of high-quality stormwater resources you can find with us — state-of-the-art products, decades of expertise, and all the maintenance support you need to operate your system cost-effectively.

THE CONTECH WAY

Contech® Engineered Solutions provides innovative, cost-effective site solutions to engineers, contractors, and developers on projects across North America. Our portfolio includes bridges, drainage, erosion control, retaining wall, sanitary sewer and stormwater management products.

TAKE THE NEXT STEP

For more information: www.ContechES.com

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