PRECAST ARCH SOLUTIONS REFERENCE GUIDE

CONTECH®
ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY

CON/SPAN® -SERIES

CON/SPAN® BRIDGE SYSTEMS

BEBO® Arch Systems

CROSSINGS. CULVERTS. BRIDGES. CONTECH.

Defining a Crossing

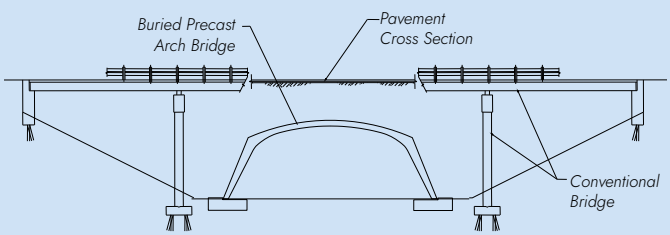
CULVERT – Structure with an invert encompassed with soil.

BURIED BRIDGE – Bottomless structure surrounded with soil.

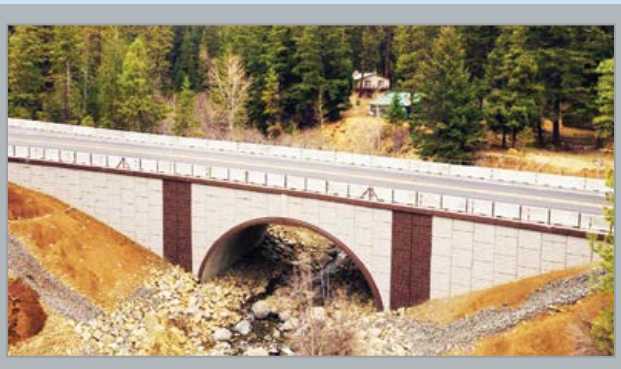
BRIDGE-AT-GRADE – Structure that clear spans from embankment to embankment.

Why Buried Precast Arch Bridge?

CONVENTIONAL BRIDGE-AT-GRADE → BURIED PRECAST ARCH BRIDGE

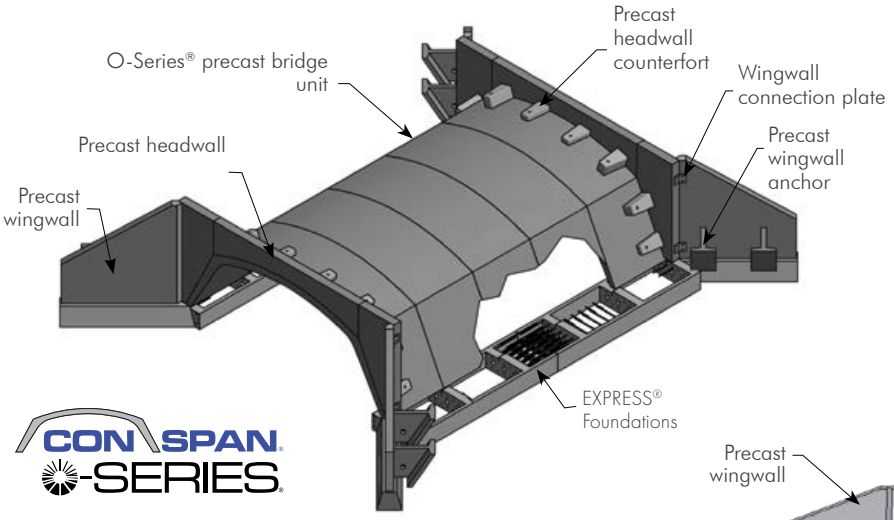


BEBO® PRECAST ARCH



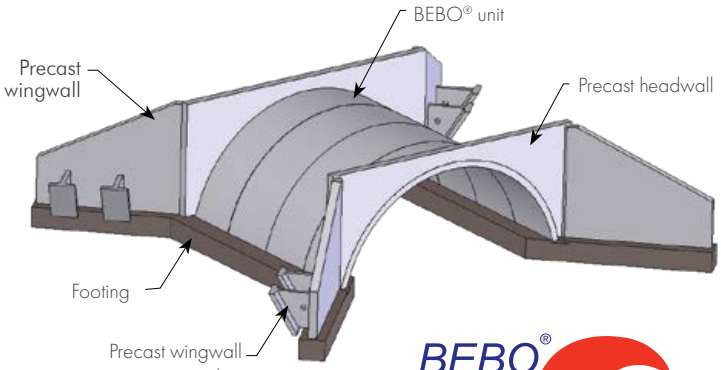
- Widespread national acceptance and proven technology
- Shorter construction time or phasing means lower initial cost
- Minimal or no long term maintenance lowers overall lifecycle cost
- Shorter co nstruction time minimizes traffic disruption
- Bury utilities in backfill over structure
- Increased safety with limited or no freeze concerns and deck maintenance

MODULAR. EFFICIENT. COMPLETE. PRECAST ARCH.



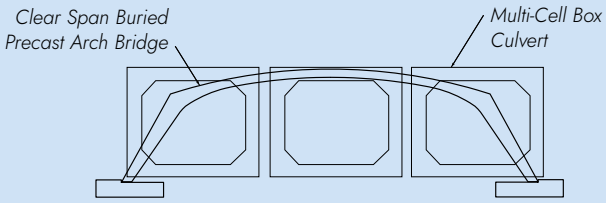
CON-SPAN® O-SERIES®

Supports FHWA
Accelerated Bridge Construction
Methods



BEBO® Arch Systems

MULTI-CELL BOX CULVERTS → BURIED PRECAST ARCH BRIDGE

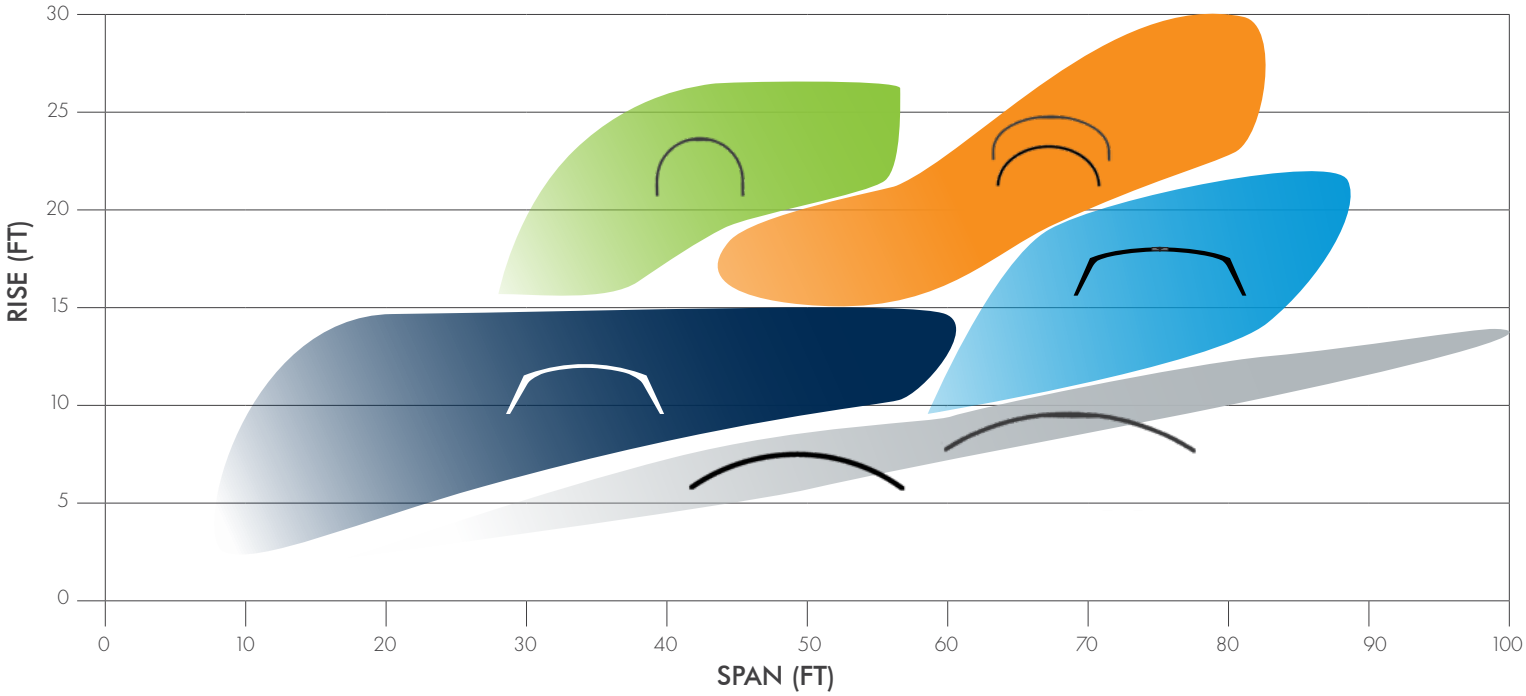


CON/SPAN® O-SERIES®

- Long clear spans promote improved hydraulics while minimizing pier blockage
- Complete system with headwalls, wingwalls and foundations
- Bottomless structure promotes natural aquatic habitat for fish and wildlife passage
- Maintenance-free structure lowers overall life cycle cost
- Project specific design to handle all loading requirements

MODULAR. EFFICIENT. COMPLETE. PRECAST ARCH.

Shape Versatility



EXPRESS® Foundation Options

EXPRESS® Foundations

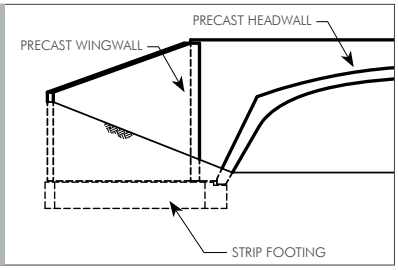
STRIP FOUNDATIONS

PEDESTAL FOUNDATIONS

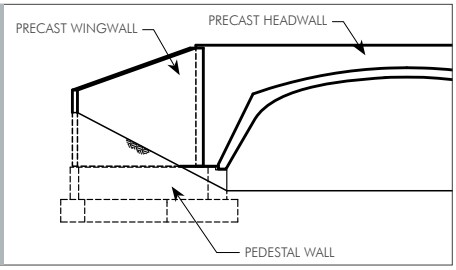
All precast EXPRESS Foundations are applicable to plate, precast, truss, and girder bridge solutions.

Cast-in-Place Foundation Options

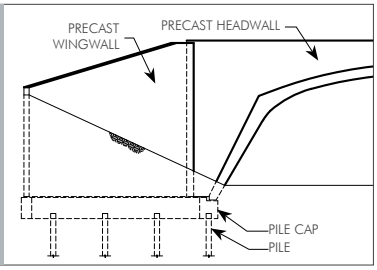
STRIP FOOTING



PEDESTAL WALL



DEEP FOUNDATION



Precast Arch Shape Options

STRUCTURE				APPLICATIONS	SPAN RANGE (FT)	RISE RANGE (FT)	WATERWAY RANGE (SF)
CON/SPAN®*		O-Series®		Hydraulics, clear spans, grade separations	13 - 65	3.23 - 13.77	33 - 685
		O-Series® Twin Leaf		Longer span hydraulics, clear spans, grade separations	66 - 87	10.50 - 20.95	550 - 1442
BEBO®		C-Series Twin Leaf		Grade separation, high rise, high covers	29.33 - 54	11.33 - 26.33	260 - 1140
		E-Series		Arch shape, clearance box, aesthetics	11.17 - 47.75	3.5 - 13.5	28 - 479
		E-Series Twin Leaf		High rise, large span, grade separation	53.58 - 84	14 - 29.83	588 - 2076
		T-Series		Low clearance crossings	22 - 62	2.60 - 9	39 - 377
		T-Series Twin Leaf		Large spans bearing rock	64 - 102	7.42 - 13.67	340 - 982

* For additional shape information, please consult the Precast Waterway Charts Overview. B-Series CON/SPAN available for limited applications.

End Treatment Options

STANDARD HEADWALL/WINGWALL

FORMLINER HEADWALL/WINGWALL

MSE PANEL WALL

CAST-IN-PLACE WALL

KEYSTONE® WALL

PROVIDING MAJOR HIGHWAY IMPROVEMENTS

DOTs

Prefabricated, modular concrete bridges offer significant advantages for Department of Transportation (DOT) projects by reducing material usage compared to conventional bridge construction methods, resulting in a lower initial cost. Off-site fabrication ensures precise adherence to design specifications, enhanced quality control, and reduced on-site work. This accelerated bridge construction (ACB) approach allows for rapid installation—typically within days—compared to the lengthy timelines with cast-in-place or conventional bridge construction.

Mesquite, NV

Wilmington, NY

Black Hills, SD

Frisco, CO

REBUILDING OUR INFRASTRUCTURE

Municipalities & Counties

Time-sensitive projects and emergency bridge replacements often lead municipalities and counties to a CON/SPAN® or BEBO® precast arch solution. The clear span structures can improve hydraulics and minimize road and closure time with a quick installation, while fitting within a budget.

Utilizing Contech's turnkey design/supply support on these projects can allow for substantial cost-savings.

Lowhill Township, PA

Knoxville, MD

Loudon County, VA

Tulsa, OK

Leander, TX

PROVIDING COMMUNITY SOLUTIONS

Residential & Commercial

Precast arch bridges have been selected by developers throughout the U.S. to provide practical, yet aesthetic structures in residential developments, hospitals, schools and communities.

Developers also look to CON/SPAN® and BEBO® for busy commercial sites. These bridges are often utilized as main entrances or centerpieces for business parks, shopping centers and local communities.

San Diego, CA

Livingston, MT

Blue Ash, OH

Huntington, WV

REIMAGINING BRIDGE PRESERVATION

Rehabilitation

Buried concrete arches offer an innovative and efficient solution for bridge rehabilitation. These precast elements can be seamlessly slid beneath aging structures, providing a durable and long-lasting alternative versus complete replacement that ensures continued serviceability. With prefabrication and comprehensive technical support, these systems enable highway agencies and municipalities to significantly reduce construction time, minimize traffic disruptions, and deliver cost-effective bridge replacements with minimal impact on surrounding communities.

Pittsburgh, PA

Chagrin Falls, OH

Licking County, OH

HELPING TO KEEP AMERICA SAFE

Wildlife Crossings

CON/SPAN® and BEBO® precast arch clear span bridges offer an effective solution for wildlife crossings, promoting ecological connectivity and enhancing safety for both animals and motorists. These structures provide a natural, open pathway that encourages the safe passage of native wildlife, reducing habitat fragmentation and preserving biodiversity. By providing animals safe passage across roadways, they significantly minimize the risk of vehicle collisions, which can result in costly damages, injuries, or fatalities.

Trapper's Point, WY

Kremmling, CO

Sevier County, UT

Murrieta, CA

PROVIDING STRENGTH AND EFFICIENCY

Mining

Contech's buried precast arch bridges provide robust and reliable solutions for mining infrastructure, including road, conveyor and rail tunnels that enable seamless access to mines. Designed to handle the demanding loads and harsh conditions typical of mining environments, these structures offer unparalleled durability and longevity. Their modular, prefabricated design ensures rapid installation, reducing project timelines and minimizing operational downtime.

Sevier County, UT

Sugar Creek, MO

Waynesburg, PA

Graysville, PA

BUILDING STRONGER CONNECTIONS

Railroads

Contech offers innovative solutions to support the railroad market with durable, efficient overpasses and underpasses. Our precast arch bridge systems, including CON/SPAN® and BEBO®, provide reliable infrastructure optimized for railway clearance boxes, supporting heavy loads while minimizing construction time and disruptions. These structures enhance operational efficiency, improve safety, and integrate seamlessly into the surrounding environment.

Billings, MT

Pittsburgh, PA

Twin Harbor, MN

Spokane, WA

ELEVATING AVIATION INFRASTRUCTURE

Airports

Contech's precast concrete arch solutions are engineered to streamline airport infrastructure projects by minimizing or eliminating taxiway and runway closures, reducing downtime, and saving costs. The robust arch shape is uniquely suited to support heavy loads, including aircraft loading, ensuring durability and long-term performance.

Houston, TX

Huntington, IN

Rochester, NY

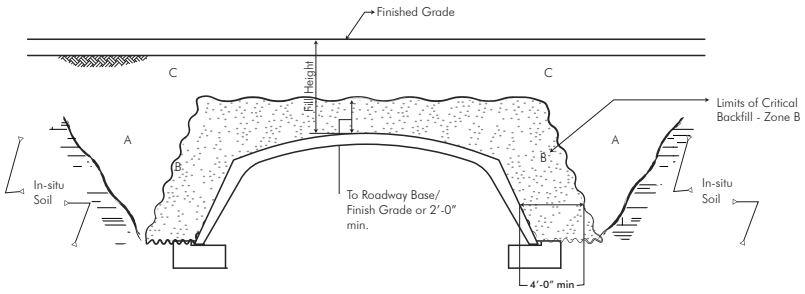
Atlanta, GA

Installation

Technical Considerations

CRITICAL BACKFILL ZONE - SOIL INTERACTION STRUCTURES.

Please refer to the precast element specifications for detailed requirements.

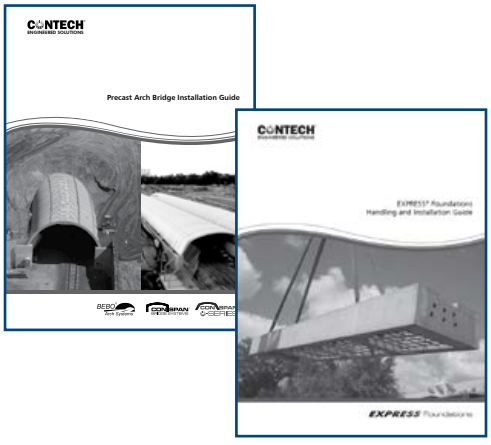


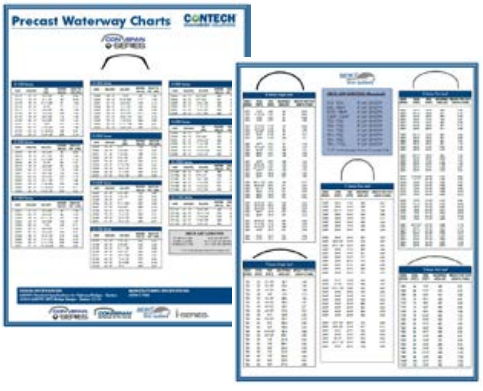
CON/SPAN O-Series Critical Backfill Zone

1. *In-situ material must be sufficiently stable to allow support of the precast units.*
2. *Zone A: Embankment or overfill material shall be properly graded and compacted, per project specifications.*
3. *Zone B: Structural backfill material per CON/SPAN® or BEBO® specifications. (Generally, a well-graded angular sand or gravel placed in 8" lifts and compacted to 95% of the maximum dry density, per AASHTO T-99 specification.)*
4. *Zone C: Roadway base and surface materials, per project specifications.*

FOR STREAM CROSSINGS:

Hydraulic coordinates available & CAD Shapes.





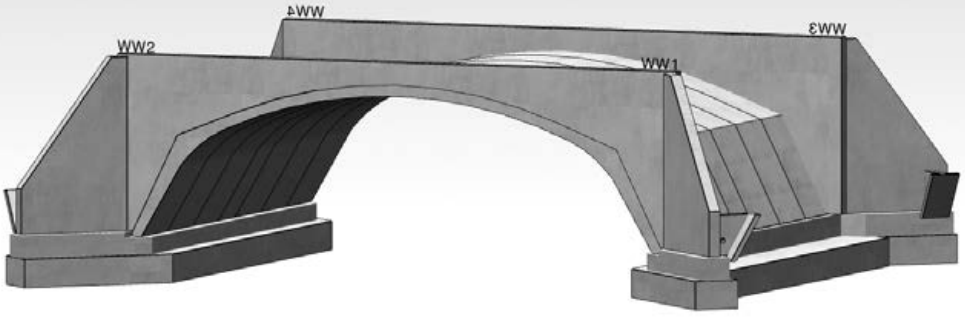
Options & Support Specific to Your Project Needs

DYOB® | Precast

Design Your Own Precast solutions.

Current product options include: CON/SPAN® & BEBO®

CONTECH® DESIGNCENTER



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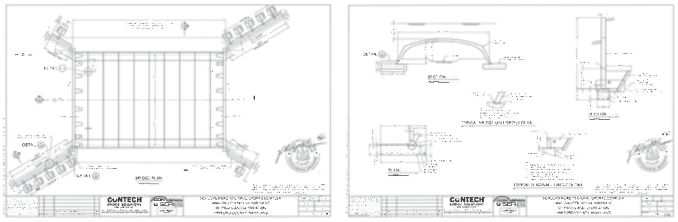
CONSIDERATIONS FOR ENGINEER OF RECORD
Site Design
Soil Borings
Soil Bearing Recommendations
Hydraulic Analysis
Scour Analysis
Scour Countermeasures
Permitting
Inspections

INSTALLATION SUPPORT	
Preconstruction Meeting	✳
Logistics Coordination	✳
Structure Onsite Installation Guidance	✳

✳	Contech Support Available
☑	Engineer of Record May Provide

SOLUTION DEVELOPMENT & DESIGN SUPPORT		
Structure Selection	✳	☑
Structure Siting and Layout	✳	☑
Engineer's Estimate	✳	
Photo Simulation	✳	☑
DYOB Concept	✳	☑
Proposal Drawings	✳	☑
Contract Drawings	✳	☑
Specifications	✳	☑
Foundation Reactions	✳	
Foundation Design	✳	☑
Hydraulic Coordinates	✳	
Scour References	✳	☑
Approval Assistance	✳	☑
Fabrication Drawings	✳	

DRAWINGS



SPECIFICATIONS

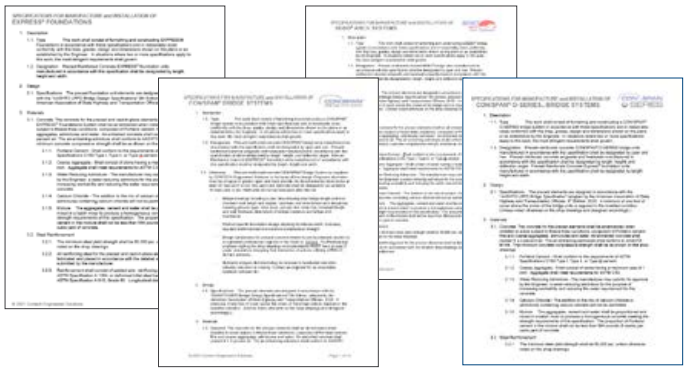


PHOTO SIMULATION

CONTECH®
ENGINEERED SOLUTIONS
A QUIKRETE® COMPANY

MANUFACTURING AMERICA'S INFRASTRUCTURE™

We manufacture engineered solutions for complex civil infrastructure challenges and create lasting value for project stakeholders through unrivaled expertise, support and workmanship.

To us, it's about being a trusted partner for project owners, engineers and customers while doing meaningful work that helps build our communities.

STORMWATER SOLUTIONS

PIPE SOLUTIONS

STRUCTURE SOLUTIONS

BridgeCor

CONTECH® STRUCTURAL PLATE

CON/SPAN® -SERIES

BEBO® Arch Systems

EXPRESS® Foundations

CONTINENTAL® BRIDGE

STEADFAST BRIDGES®

BIG R® BRIDGE

VISTAWALL®

ARMORTEC® Erosion Control Solutions

clearCAST™ Transparent Bridge Deck Forms

For more information, we have representatives for all 50 states.
Please call 800-338-1122 or visit www.conteches.com.

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