

CONTECH[®]
ENGINEERED SOLUTIONS

Terre Arch[™] Installation Guide



Terre Arch™ Installation Instructions

Contractor Requirements

1. All work must proceed in accordance with the most current Terre Arch installation instructions, the most current Design Engineer's drawings and approved Terre Arch shop drawings
2. Contractor is responsible for compliance with all local, state and federal laws and regulations
3. Contractor is responsible for all utility and other underground structures location prior to start of work
4. Contractor must schedule a preconstruction meeting at the project site at least thirty (30) days prior to start of work; Contractor shall be responsible for notifying crane company to attend; a Contech representative will be in attendance provided that prior notice and schedule are confirmed
 - a. At the preconstruction meeting all construction installation matters shall be discussed and agreed upon, including but not limited to:
 - i. Size of crane required
 - ii. Location(s) of crane for installation
 - iii. Installation equipment required
 - iv. Installation material required
 - v. Confirmation of number of structures to be installed and the proper sequencing of each
 - vi. Ingress/egress access for all equipment, trucks, etc.
 - vii. Scheduling and staging for tractor trailers with a 53 foot bed and stone backfill trucks
 - viii. Special conditions such as proximity of overhead wires or other obstructions
 - ix. Confirmation of all required Soil & Erosion control measures will be in place and properly maintained during installation of Terre Arches
 - x. Review of the most current Terre Arch installation instructions, the most current Design Engineer's drawings and approved Terre Arch shop drawings
 - xi. Review of all other matters necessary to ensure successful installation

Required Excavation

1. Excavation per plans
 - a. Excavate at least one (1) extra foot around perimeter to allow proper backfill and compaction
 - b. Excavation must be free of standing water; dewatering must be undertaken if required; positive drainage of the excavation must be maintained



- c. Prepare the subgrade soil as per Design Engineer drawings
- d. Minimum subsurface soil load bearing capacity: 3000 PSF (by Design Engineer); may be increased by Design Engineer to balance loads; any discrepancy with the subgrade soil's bearing capacity with the Design Engineer's requirements must be reported
- e. Minimum foundation stone sub base: minimum varies and is project specific, refer to the Design Engineer's drawings for required stone sub base thickness
- f. The Terre Arch 26 is installed with a 6" (minimum) stone bed while the Terre Arch 48 is installed with a 12" (minimum) stone bed. Each unit requires a minimum 3000 psf bearing capacity.

Installation of Terre Arch and Related Accessory Structures

1. A Contech representative will be on site during the installation process, if agreed upon at preconstruction meeting and for the agreed upon duration; the Contech representative is not required to perform, inspect, investigate, confirm or verify any item; Contractor is responsible for proper installation in accordance with drawings and instructions.
2. Each Terre Arch shall have four (4) lifting points with Uni-Lift pins
3. Approximate weight: Terre Arch 26: 13,500 lbs; Terre Arch 48: 19,500 lbs
4. Contractor shall remove the Terre Arch and related accessory structures from the trucks by crane. The crane shall be equipped with a strapping of at least 20 feet in length, and cause the structures to be placed in their respective proper location within the excavation.
5. Contractor shall install the units in accordance with the drawings; placing the distribution manifolds in their proper location for connecting to the arches.
6. Prior to placement of distribution manifold and the

first row of Terre Arches, Contractor shall place the following material (if required for project) on top of stone sub base, under each distribution manifold and first row of Terre Arch structures abutting the distribution manifold as shown on the drawings and in the following order:

- a. Anti scour material
 - b. Non woven Geo Grid material
7. Along entire length of each joint between the structures, the contractor shall install "Conseal" Butyl mastic to prevent fines from migrating into the interior of the system
 8. Contractor shall place end caps where shown on the drawings and shall secure them with metal straps as shown on the drawings prior to backfilling the perimeter adjacent to location of end caps
 9. Prior to perimeter backfilling, the system pipes shall be connected into the distribution manifolds
 10. Prior to placement of stone on top of the Terre Arch, the contractor shall backfill the perimeter adjacent to the Terre Arch with stone or other backfill material as permitted by the Design Engineer
 11. Prior to placement of stone on top of distribution manifold, contractor shall install all precast concrete riser sections to required height
 12. Contractor to unload stone backfill at a location that is not directly over the Terre Arch system
 13. Contractor shall place stone on top of the Terre Arch and related accessory structures to the height as shown on the drawings
 14. Compact each lift of backfill (stone and other suitable material) as specified by the Design Engineer
 15. After stone backfill is placed and leveled to required height the contractor may either
 - a. Install additional suitable backfill material as allowed by the Design Engineer to required final grade; provided that in the event backfill material other than stone is placed on top of the stone, the contractor, prior to the installation of the backfill material shall place a AASHTO M288 Class 2 non woven Geotextile over the entire stone surface to prevent migration of fines into the stone backfill; the filter fabric must overlap at least two (2) feet where the edges of the fabric meet
 - b. Install paving material as shown on the drawings to the required final grade

Approved Installation Materials

1. Tencate woven filtration media 58600 white cc honeycomb (anti-scour material)
2. Tensar BX 1200 Biaxial Geo Grid
3. ConSeal: CS-102-B 1 1/2" x 10' rolls
4. AASHTO M288 Class 2 non-woven Geotextile
5. Fabricated bent metal strips to attach end caps to Terre Arch. Foundation stone sub base (minimum), may be increased by Engineer.

The minimum top 2 inches of stone shall be #8 AASHTO (clean 1/2" angular stone) and the remainder of the stone base can range from #5 AASHTO (clean 1 1/2" angular stone) to 8 AASHTO (clean 1/2" angular stone) . The total stone depth shall be 6 inches for the TA 26 and 12 inches for the TA 48.
6. Backfill stone on top of structures and perimeter of excavation
 - a. # 5 AASHTO (clean 1 1/2" stone) or other suitable stone as allowed by Engineer
7. Backfill material above backfill stone
 - a. Any soil/rock materials, native soils as per Engineer's plans. Check plans for pavement subgrade requirements. Non-woven geotextile recommended to avoid migration of fines

Necessary Installation Equipment

1. Crane to remove structures from delivery truck and to place structures into properly prepared excavation. Size of crane to be determined at the preconstruction meeting
2. Twenty foot (20ft) long lifting straps
3. Rise Lifters (supplied by precast manufacturer)
4. Tri axle or similar size capacity dump trucks for stone and other backfill material
5. Equipment to spread stone
6. Equipment to compact stone where required

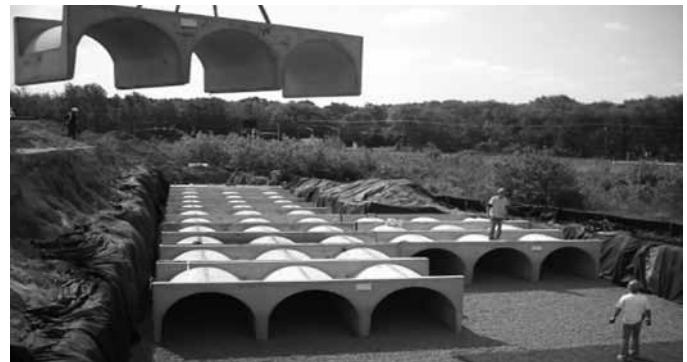


Model	Installed Volume	Infiltration Area	Approximate Weight	Dimensions
Terre Arch 26	319 CF*	152 SF	13,500 lbs.	8'-0" x 19'-0" x 2'-10"
Terre Arch 48	608 CF*	160 CF	19,500 lbs.	8'-0" x 20'-0" x 4'-8"

	TA 26	TA 48
Elevation	Storage (cf)	Storage (cf)
-1	0	0
-0.9	0	6
-0.8	0	13
-0.7	0	19
-0.6	0	26
-0.5	0	32
-0.4	6	38
-0.3	12	45
-0.2	18	51
-0.1	24	57
0	30	64
0.1	44	78
0.2	58	93
0.3	72	107
0.4	86	121
0.5	99	135
0.6	113	150
0.7	126	164
0.8	139	178
0.9	152	192
1	164	207
1.1	177	221
1.2	189	235
1.3	201	249
1.4	212	264
1.5	223	278
1.6	234	292
1.7	244	306
1.8	254	320
1.9	262	334
2	270	348
2.1	276	361
2.2	279	375

	TA 26	TA 48
Elevation	Storage (cf)	Storage (cf)
2.3	282	389
2.4	286	402
2.5	290	415
2.6	296	428
2.7	301	440
2.8	307	452
2.9	313	464
3	319	476
3.1		488
3.2		499
3.3		509
3.4		520
3.5		530
3.6		539
3.7		547
3.8		556
3.9		561
4		565
4.1		569
4.2		572
4.3		576
4.4		581
4.5		587
4.6		593
4.7		599
4.8		606
4.83		608

* Table assumes 6" base stone for TA26 and 12" base stone for TA48, with 6" cover stone over top of arch.





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