485 WEAVERLAND VALLEY ROAD
POST OFFICE BOX 10
TERRE HILL, PA 17581

TERRE ARCH™ Installation Instructions

Contractor Requirements

1. Contractor must refer to the most current Terre Arch installation instructions prior to start;
2. 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;
3. Contractor is responsible for compliance with all local, state and federal laws and regulations;
4. Contractor is responsible for all utility and other underground structures location prior to start of work;
5. 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 Terre Arch 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 55 foot bed, 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 and level;
    b. Excavate at least one (1) extra foot around perimeter to allow proper backfill and compaction;
    c. Excavation must be free of standing water; dewatering must be undertaken if required; positive drainage of the excavation must be maintained;
    d. Prepare the bed subgrade soil as per Design Engineer drawings;
    e. 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;

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f. Minimum foundation stone sub base: six (6) inches, (5" #5 AASHTO & 1" #8 ASSHTO); may be increased by Design Engineer; refer to the Design Engineer's drawings for required stone sub base thickness;
g. Compact the stone to achieve required flat, even surface (+/- ¼")

Installation of Terre Arch and Related Accessory Structures

1. A Terre Arch representative will be on site during the installation process, for as long as the Terre Arch representative shall determine in his discretion, to advise contractor during installation; the Terre Arch 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. Weight: Terre Arch 26: 15,000 lbs: Terre Arch 48: 19,000 lbs
4. Contractor shall remove the Terre Arch and related accessory structures from the trucks by crane. The crane shall be equipped with a chain 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 butt each structure against the next structure in accordance with the drawings; placing the distribution manifolds in their proper location for receiving the pipes;
6. Prior to placement of any distribution manifold and the first row of Terre Arches abutting the distribution manifold Contractor shall place the following material on top of stone sub base, under the structures, at the location of each distribution manifold and first row of Terre Arch structures abutting the distribution manifold as shown on the drawings:
    a. Anti scour material: Tencate woven filtration media 58500 white cc honeycomb filter;
    b. Non woven Geo Grid material :Tensar Bx 1200 Biaxial Geo Grid
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 shall place stone on top of the Terre Arch and related accessory structures to the height as shown on the drawings; Contractor shall have direct access onto the Terre Arch without the need for prior placement of stone as the Terre Arch is HS-20 load rated;
13. Minimum Cover: six (6) inches; Maximum Cover: Twenty (20) feet
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 paving material as shown on the drawings to the required final grade;
    b. 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 AAASHTO 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.

Approved Installation Materials

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1. Tencate woven filtration media 58500 white cc honeycomb
2. Tensar Geo-Grid material: Tensar Bx 1200 Biaxial Geo Grid
3. ConSeal: CS-102-B 1 ½" x 10' rolls
4. AASHTO M288 Class 2 non-woven Geotextile
5. Fabricated bent metal strips to attach end caps to Terre Arch
6. Foundation stone sub base (minimum), may be increased by Engineer
    a. 5" # 5 AASHTO (clean 1 ½" stone)
    b. 1" # 8 AASHTO (clean ½" stone)
7. Backfill stone on top of structures and perimeter of excavation
    a. # 5 AASHTO (clean 1 ½" stone) or other suitable stone as allowed by Engineer
8. Backfill material above backfill stone
    a. Any soil/rock materials, native soils as per Engineer's plans. Check plans for pavement subgrade requirements.

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 strap.
3. Ris 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

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