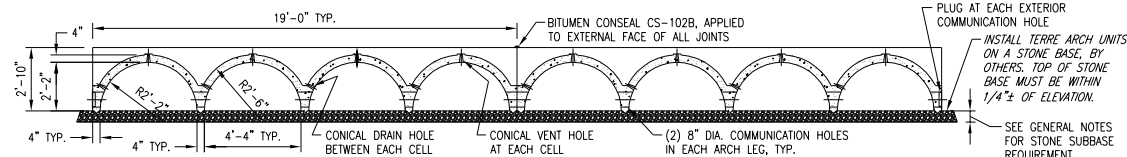
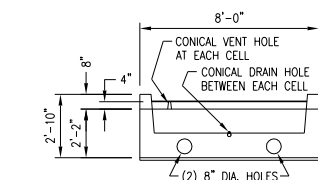


PLAN (LAYOUT OPTIONS)

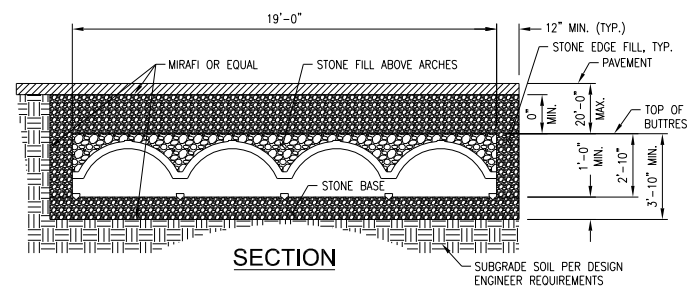
NOTE: EROSION MAT AND ANTI-SCOUR MAT USED ONLY AT INFLUENT PIPE(S)



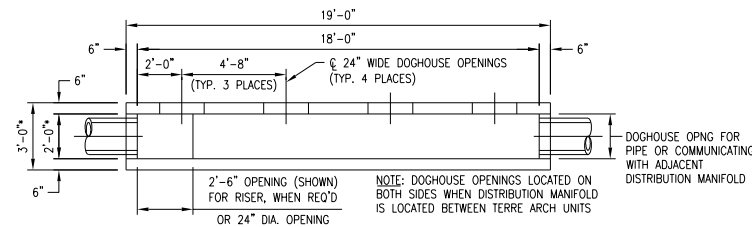
TYPICAL TERRE ARCH PIECE SECTION



TYPICAL TERRE ARCH PIECE ELEVATION

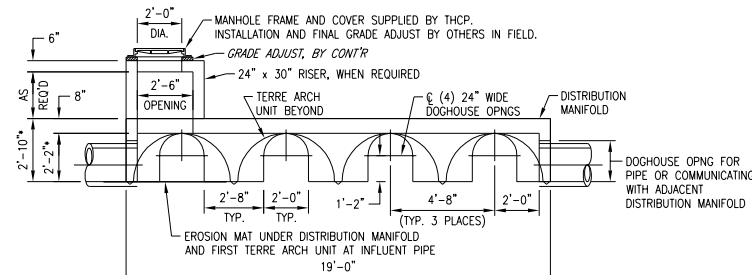


SECTION

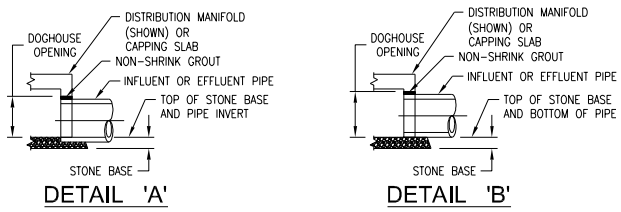


PLAN AT DISTRIBUTION MANIFOLD

* STANDARD WIDTH AND HEIGHT DIMENSIONS ARE SHOWN. FOR LARGER PIPE SIZES, CONTACT THSS FOR DESIGN REQUIREMENTS.

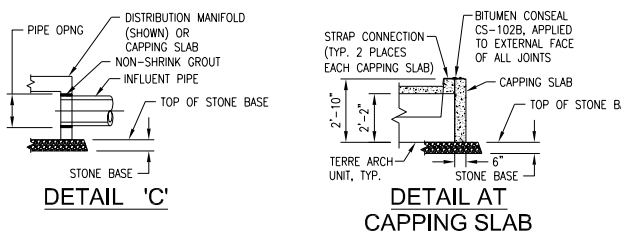


SECTION THRU DISTRIBUTION MANIFOLD



DETAIL 'A'

DETAIL 'B'



DETAIL 'C'

DETAIL AT CAPPING SLAB

TERRE ARCH - GENERAL NOTES:

THE TERRE ARCH™ (PATENT PENDING 11/569,437 (10-30-2007)) UNDERGROUND DETENTION SYSTEM AS DESIGNED, MANUFACTURED AND INSTALLED BY TERRE HILL STORMWATER SYSTEMS. CONTACT: TERRE HILL STORMWATER SYSTEMS AT P.O. BOX 10, 485 WEAVERLAND VALLEY ROAD, TERRE HILL, PA (PHONE 1-800-242-1509) OR WWW.TERRERORM.COM

CONCRETE f'c= 5,000 PSI AT 28 DAYS; WITH ASTM C-33 #57 OR #67 COARSE AGGREGATE AND FIBER REINFORCING.

DEFORMED STEEL REINFORCING CONFORMS TO ASTM A615 GRADE 60. WELDED WIRE FABRIC CONFORMS TO ASTM A185. DEFORMED WELDED WIRE FABRIC OF EQUAL SIZE MAY BE SUBSTITUTED FOR SMOOTH WELDED WIRE FABRIC AND SHALL CONFORM TO ASTM A497.

OPENINGS AROUND INFLUENT AND EFFLUENT PIPES SHALL BE GROUTED IN FIELD BY OTHERS. NON-SHRINK GROUT SHALL BE USED.

UNI LIFT ANCHORS MANUFACTURED BY UNIVERSAL FORM CLAMP COMPANY, OR EQUAL UNI LIFT ANCHORS TYPICAL FOR HANDLING.

PA THREADED INSERTS MANUFACTURED BY PENNSYLVANIA INSERT CORPORATION.

JOINT SEALING MATERIAL SHALL BE BITUMEN CONSEAL CS-102B JOINT MATERIAL MANUFACTURED BY CONCRETE SEALANTS, INC. AND CONFORMS TO FEDERAL SPECIFICATION SS-S-210A. JOINT SEALANT MUST BE INSTALLED IN ACCORDANCE WITH CONCRETE SEALANTS, INC. RECOMMENDATIONS.

EROSION & ANTI-SCOUR MATS SHALL BE INSTALLED UNDER DISTRIBUTION MANIFOLDS AT EACH INFLUENT PIPE LOCATION. EROSION MAT TO BE TENSAR BX-1200 BIAXIAL GEOTEXTILE AS MANUFACTURED BY TENSAR EARTH TECHNOLOGIES, INC. OR EQUAL. ANTI-SCOUR MAT TO BE WOVEN FILTRATION MEDIA, 58500 WHITE-CC-HONEYCOMB FILTER AS MANUFACTURED BY TENCATE NICOLON, OR EQUAL. EROSION AND ANTI-SCOUR MATS SUPPLIED BY TERRE HILL STORMWATER SYSTEMS AND INSTALLED BY OTHERS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

MANHOLE FRAMES AND COVERS SUPPLIED BY TERRE HILL STORMWATER SYSTEMS. INSTALLATION AND GRADE ADJUST BY OTHERS. MANHOLE FRAMES AND COVERS TO BE QUIRIN MODEL No. MHR414, EAST JORDAN IRON WORKS MODEL No. 1310, OR EQUAL. COVERS TO BE MKR "STORM".

EXCAVATION, COMPACTED STONE BASE, BACKFILL AND GRADING BY OTHERS.

IT IS RECOMMENDED THAT AN INSPECTION BE MADE ON A QUARTERLY BASIS AND AFTER EACH SIGNIFICANT RAINFALL EVENT. ANY ACCUMULATED DEBRIS/SEDIMENTATION THAT IMPAIRS THE PERFORMANCE OF THE SYSTEM IS TO BE REMOVED THROUGH THE PROVISION OF FULL ACCESS INTO ALL AREAS OF THE UNDERGROUND STORAGE SYSTEM.

WHEN A TERRE KLEEN HYDRODYNAMIC SEPARATOR IS PLACED IN FRONT OF EACH UNDERGROUND STORAGE SYSTEM NO CLEAN OUT OR MAINTENANCE IS ANTICIPATED, AS LONG AS THE TERRE KLEEN HYDRODYNAMIC SEPARATOR IS PROPERLY MAINTAINED.

EXCAVATION, DEWATERING AND SHORING OF EXCAVATION WILL BE BY OTHERS. THIS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AS PROVIDED BY ENGINEER AND OSHA REQUIREMENTS.

UNLESS OTHERWISE SPECIFIED, SUB-GRADE SHALL BE ESTABLISHED AS SHOWN ON THE DRAWINGS. UNDERLYING SOIL AND SUB-GRADE MATERIAL SHALL HAVE DESIGN LOADING OF NOT LESS THAN 3,000 POUNDS PER SQUARE FOOT (PSF), AS ESTABLISHED BY ENGINEER; (MINIMUM STONE BED SHALL BE 12" OF #57 STONE) LEVEL TO ±1/4".

THE 'TERRE ARCH'™ UNDERGROUND STORAGE SYSTEM SHALL BE WARRANTED FOR 4 YEARS FROM DATE OF SUBSTANTIAL COMPLETION FOR LABOR AND MATERIAL IN THE EVENT THAT THE MATERIAL IS NOT FREE FROM DEFECTS.

THE 'TERRE ARCH'™ PRECAST CONCRETE UNDERGROUND STORAGE SYSTEMS ARE DESIGNED, MANUFACTURED AND INSTALLED BY TERRE HILL STORMWATER SYSTEMS OR APPROVED EQUAL TO MEET: STORAGE CAPACITY REQUIREMENTS, AND HS-25 LOADING REQUIREMENTS.

TERRE ARCH PERFORMANCE, DESIGN & INSTALLATION SPECIFICATIONS

The Terre Arch is a precast concrete modular roman arch structure consisting of four connected parallel vaults for subsurface storage of stormwater for; accessory components such as inflow and outflow detention systems, e.g. manholes are designed, engineered, and manufactured to match specific needs:

1. Detention for controlled discharge through an outlet control structure;
2. Infiltration to recharge the ground water;
3. HS-25 load rating on the crown of the arch; no minimum cover or fill requirements; no requirement for load bearing stone between or above structure; direct access for heavy installation equipment, including stone filled dump truck. (Perimeter stone fill is required prior to imposing HS-25 loading on the system);
4. Maximum cover up to 20 ft. (verify sub-base depth and soil bearing);
5. Water-Quality-Treatment device should be placed in front of the Terre Arch to prevent entry of sediment, oil, grease, litter, and debris to the maximum extent practicable;
6. Structure has 5,000 psi compressive strength and 100 year design life;
7. 152 sq.ft. (8 feet by 19 feet) infiltration surface per structure;
8. 309 cu.ft. of storage in customary installation, i.e. 6" stone bed foundation and valleys between arches filled with stone to the top of the buttresses (40% void space typical with stone);
9. Each structure is less than 13,500 lbs. allowing shipment of 3 structures per truck; placement from truck into the prepared excavation by light crane or loader;
10. No minimum cover or fill requirements allow for shallow installation conditions;
11. Ventilation and draining orifices in top and valley areas of structure;
12. Communication holes in the legs of the arches to allow flow between all sections; mating leg with stone perimeter will have no cross flow hole;
13. Erosion matting is required at all influent pipes;
14. No requirement for geotextile separation layer below. Use filterfabric or geotextile where silt migration from the sides or top into the stone's void space is possible;
15. Manufacturer shall submit shop drawings and such other information requested by Engineer to verify Performance and Design Specifications;
16. Each Terre Arch shall contain lifting points with Uni-lift pins, manufacturer shall loan the lifting hardware to the contractor, which shall be the property of manufacturer. Contractor shall provide equipment with sufficient lifting capacity to unload and set the Terre Arch;

PRODUCT INSTALLATION PROCEDURES

17. Contractor shall excavate according to the latest dated approved drawing set, dewater and shore in accordance with project specifications, as provided by Engineer;
18. Unless otherwise specified, sub-grade shall be established as shown on the Drawings Underlying soil and sub-grade material shall have design loading of not less than 3000 pounds per square foot (psf), as established by Engineer; (typical stone bed shall be 12" OF #8 ASHTO (1/2"stone) level to plus or minus 3/8 inch;
19. Arches shall be placed within a nominal 8'-01/2" by 19'-01/2" matrix.
20. THSS Recommend anchoring of the arched system relative the influent manifolds or distribution manifolds. Place riser sections on manifolds.
21. Install perimeter drain caps prior to final placement into the standing leg opening. Two required per perimeter leg.
22. Place Conseal on the joints between the arches to prevent migration of fines into the joint gap.
23. Prior to allowing any top loading all perimeter space between the edge of the arch system and the soil shall be filled with at least 12 inches of stone.
24. Bulldoze stone onto the arches with about 2 inches of stone above the buttress elevations.
25. Use vibrating rolling equipment to stabilize the top stone and settle the arches into the sub-base.
26. Finalize covering the system with the specified stone top loading and cover with filter fabric to prevent migration of fines into the stone voids.
27. Place additional soil amendments and grading requirement.
28. Contractor shall remove all material and debris from the Terre Arch;
29. Warranty: 4 years from date of substantial completion for labor and material in the event that the material supplied is not free from defects; equipment shall be installed and used only in the particular application for which it was specifically manufactured;
30. Terre Arch installation may require distribution box(es) and end cap plates as shown on the Drawings.

PRODUCT SUBSTITUTION PROCEDURES

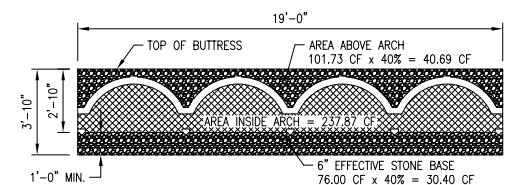
1. No underground stormwater storage system shall be approved as an equivalent substitution for a Terre Arch system unless the Engineer shall receive and approve drawings and specifications stamped and sealed by a professional engineer registered in the state wherein the project is located showing the following: a. project specific sizing calculations clearly showing that the unit meets or exceeds the Performance & Design Specifications of the Terre Arch

MAINTENANCE PROCEDURES

1. When a Terre Kleen Hydrodynamic Separator is placed in front of the Terre Arch system no clean out or maintenance is anticipated, as long as the Terre Kleen Hydrodynamic Separator is properly maintained;
2. Inspection can be accomplished from grade with proper equipment by entry through the grade opening(s);
3. System shall contain sufficient Distribution Manifolds to allow entry for inspection and maintenance into each arch or each Terre Arch.

SUBJECT TO CHANGE WITHOUT NOTICE.

VERIFY LATEST INFORMATION WITH TERRE HILL STORMWATER SYSTEMS (800)-242-1509



CAPACITY, TYPICAL TERRE ARCH PIECE
(CAPACITY = 309 CF PER PIECE)

TERRE ARCH™ [Patent Pending 11/569,437 (10-30-2007)]



TERRE HILL, PA. (717)445-3100

PRECAST TERRE ARCH™ (PATENT PENDING)
RETENTION / DETENTION FACILITY

REVISIONS	JOB:	CONTR:	ENG'R:	BY:	DATE:	SHT. 1 OF

Revision	1-2-09
Revision	11-13-08
Initial Release	7-7-08