



## AirField Systems Illustrated Guidelines for Synthetic Turf

1. Since all field sites are unique in geographic location the Licensed Geo-Technical Engineer and the Field Engineer shall specify and certify all the appropriate materials, methods of preparation, methods of installation (including grading and compaction) and methods of testing of the sub-grade and/or sub-base. And since the sub-grade and/or sub-base materials must be compatible with the impermeable liners and filter fabrics the Licensed Geo-Technical Engineer shall also specify and certify the filter fabrics and impermeable liners for the trenches and the field cavity. This is to insure that the impermeable liners remain impermeable for the life of the field. It is highly recommended to have the impermeable liner installed by the manufacturer or it's certified installers. **In this Illustrated Manual for Synthetic Turf we give illustrations and instructions for sandwiching the impermeable liner between two filter fabrics. This may not be what the Geo-Technical Engineer specifies for your site specific location.**
2. Once the sub-base and/or sub-grade is completed to specified tolerances it shall be inspected, approved and certified by the Licensed Geo-Technical Engineer and the Field Engineer (sub-base and/or sub-grade elevations specified by Field Engineer). Next the trenches are to be neatly excavated with free standing sidewalls and kept free of loose debris in excavation bottom. Trench excavation to be laser graded to plan elevations as dimensioned by Field Engineer and as shown on project plans. See Figure 1 for typical trench excavation illustration.
3. Install the geo-textile filter fabric into the trench excavations. Firmly attach one end of the filter fabric roll to the field wood nailer using manufacturer's approved adhesive (figures 2 and 2A). The filter fabric material should lay smoothly against the trench excavation sidewalls and bottom of the trench. The filter fabric shall extend a minimum of three feet past each trench line (figure 3). Continue this process until all the trenches have filter fabric installed. Be sure to overlap (4 to 6 inches) and properly affix all filter fabric seams using manufacturer's approved adhesive in accordance with manufacturers recommendations.
4. Install the filter fabric over the field cavity. Apply 4 to 6 inches of manufacturer's approved adhesive to the end of the trench filter fabric that extends 3 feet from the trench into the field cavity. Take the first piece of field filter fabric and affix it atop the trench filter fabric by overlapping the trench filter fabric by at least 8 inches. Roll this field filter fabric across the entire width of the field until it overlaps the opposite trench filter fabric by at least 8 inches. Be careful to make sure there are no wrinkles or folds that could cause any reflection in the turf. Fold back the first field filter fabric that overlaps the trench filter fabric on this side of the field and apply 4 to 6 inches of approved adhesive to the top of the trench filter fabric edge on this side of the field. Unfold and secure the 2 filter fabrics. Take the second field filter fabric and overlap the first field filter fabric by approximately 6 inches. Using the approved adhesive firmly affix the second field filter fabric atop the trench filter fabric on this side of the field. Then roll out the second field filter fabric across the entire field affixing the 6 inch overlap to the filter fabric underneath as you



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proceed. When the opposite side of the field is reached firmly affix the second field filter fabric atop the trench filter fabric on this side of the field. Repeat this process with additional field filter fabric until the entire field cavity is covered with geo-textile filter fabric.

5. Install the impermeable trench liners into the trench excavations. Firmly attach one end of the trench liner to the field wood nailer using liner manufacturer's approved adhesive. Liner material will be installed atop geo-textile fabric and should lie smoothly against trench excavation sidewalls and bottom and be extended a minimum of three feet past each trench line (see Figures 4, 4a and 5). To complete the trench liner installation follow manufacturer's specifications for seaming to insure the trench liners remain impermeable for the life of the field. After all the impermeable trench liners are secured and installed proceed with installing the field liners.
6. Install the impermeable field cavity liner. Refer to figures 6, 6a, 7, 7a, and 7b. Overlap and affix the impermeable liners according to the figures and per the liner manufacturer's specifications. Continue until the entire field cavity is covered with impermeable liner. Once the liner installation is complete it should be impermeable for the life of the field. Protect completed liner until drainage system completion. Do not allow vehicular traffic to come into direct contact with installed liner material. After installation, the liner shall be completely impermeable and approved and certified as such by the Geo Technical Engineer, Field Engineer and Owner's representative.
7. Install the second layer of geo-textile filter fabric into the trench excavations covering the impermeable liner. Firmly attach one end of the geo-textile filter fabric roll to the field wood nailer with manufacturer's approved adhesive (figures 8, 8a). Filter Fabric material should lay smoothly against trench excavation sidewalls and bottom and be extended a minimum of three feet past each trench line (figure 9).
8. After the 2nd set of geo-textile filter fabrics covering the impermeable trench liners is secured and installed proceed with installing the top layer of geo-textile fabric over all the impermeable liners (in effect sandwiching the impermeable liner between 2 geo-textile filter fabrics). This process can be accomplished by repeating the method that was used to install the bottom layer of geo-textile filter fabric.
9. Place a minimum of 2 inches of specified and approved bedding material into the bottom of trench excavation. Take care to monitor all bedding material for compliance with specifications. Material to be free of sharp edges which could in any way damage liner material. All liners must remain impermeable for the life of the field (see Figure 10).
10. Locate each run of trench drain pipe material and place to plan elevations. Perform laser grade verification of the installed pipe elevations for compliance with plans. All pipe joint couplings are to be installed per pipe manufacturer's specifications (see Figure 11).



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11. Back fill pipe sides and top with approved bedding material. Again, ensure liner is not damaged by back filling operation. Do not allow vehicles atop the sandwiched liner during back fill installation. Interior of pipe sections to remain free of dirt, debris and other deleterious material during back fill operations, protect pipe ends as needed. Bring trench back fill material level to previously accepted sub-base. Trench back fill material to be plate compacted to specified densities (see Figure 12). Confirm compaction of trench drain back fill material and re-compact and regrade as necessary.
12. Use manufacturer's approved adhesive to affix a section of geo-textile fabric material over length of trench drains to prevent back fill material migration into AirDrain GeoCell material (see figures 13, 13a and 14).
13. Begin installation of the AirDrain GeoCell material. The AirDrain panels are to be installed with the larger diameter clover openings facing upwards or grid side up (figure 15). Place the first AirDrain panel to the field's upper left hand corner (figure 16). **It is of primary importance to orient the AirDrain panels with the integral indicator tab (painted yellow) to the panel's bottom left hand corner** (figure 17). Proper sequencing and orientation of AirDrain panels will result in a rapid installation.

The AirDrain panels are to be installed across the field in a rowed pattern left to right. Staggering of rows will allow for multiple row completion by a multi-manned crew. Place the first panel (1-1) against the wood nailer/concrete curb and commence with panels 1-2, 1-3 and so on with one directional pull to secure (see figures 18, 19). After each one directional pull secures the panel connectors together, verify each integral connector is snapped in place.

Once the first row has progressed across the field, start with the second row. By maintaining proper AirDrain panel orientation, the top edge panel connectors will drop into the previously installed panel receptors of the first row. The most efficient method of installation may be to install 3 panels at a time.

See GeoCell installation video at [www.AirFieldsystems.com/green-roofing](http://www.AirFieldsystems.com/green-roofing).

The AirDrain panels can be shaped to individual field areas as needed with an appropriate cutting device (tin snips or table saw). Continue until the entire field is covered with the AirDrain GeoCell.

If problems are encountered attaching AirDrain parts (this may occur for several reasons) it is permissible to attach AirDrain parts using zip ties. When using zip ties to attach AirDrain parts take care not to tighten the zip tie all the way or too tightly. Be sure to leave a small space that would match the normal spacing and sequencing of AirDrain parts to maintain the integrity of the patented expansion and contraction joints built into the AirDrain design.



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14. Install geo-textile filter fabric layer over the AirDrain GeoCell material (see figure 20). Firmly affix one end of the geo-textile filter fabric roll to the field wood nailer/curb using manufacturer's approved adhesive. Roll the geo-textile filter fabric across the entire width of the field until it reaches the wood nailer/curb on the opposite side of the field. Be careful to make sure there are no wrinkles that could cause any reflection in the turf. Firmly affix the geo-textile filter fabric to the wood nailer/curb on this side of the field (at this point the filter fabric should be affixed to both sides of the field). Take a second roll of filter fabric and overlap the first piece of filter fabric by approximately 6 inches. As before firmly affix one end of the filter fabric to the field wood nailer on this side of the field. Then roll the filter fabric across the entire field affixing the overlap to the filter fabric underneath it as you proceed. When the opposite side of the field is reached, firmly attach this second filter fabric to the field wood nailer/curb on this side of the field. Repeat this process until all the AirDrain GeoCell is completely covered with geo-textile filter fabric. Once the geo-textile filter fabric installation is complete there should be no visible gaps, puckering, folds, wrinkles or excessive loose material overhangs. Installed geo-textile filter fabric to be smoothly laid across all the AirDrain GeoCell material.
15. Once the geo-textile filter fabric has been installed atop the AirDrain GeoCell material, the Sub-Surface Drainage System is complete and ready for inspection and acceptance by sign offs of the Playing Field Contractor, Geo Technical Engineer and the Owner's Representative. Any readily visible deficiencies in the Sub-Surface Drainage System will be apparent in the finished playing field surface. Satisfactorily repair all deficiencies noted and obtain approval and acceptance before proceeding with artificial turf system installation. **Do not allow any vehicular traffic on the Sub-Surface drainage system.** Any sub-surface drainage system damaged by installation is to be satisfactorily repaired and accepted before the synthetic turf is installed.

**DISCLAIMER: The preceding and following drawings and/or general installation guidelines are provided only to show a concept design for installation and are not instructions for any particular installation. These drawings and general instructions are not complete and are provided only to assist a licensed Geo-Technical Engineer, a Landscape Architect and/or Civil Engineer in preparing actual construction and installation plans. These drawings and instructions must be reviewed by a licensed Geo-Technical Engineer, a Landscape Architect and/or Civil Engineer and adapted to the condition of a particular installation site and to comply with all state and local requirements for each installation site. THESE DRAWINGS AND/OR GENERAL INSTRUCTIONS DO NOT MODIFY OR SUPPLEMENT ANY EXPRESS OR IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IF APPLICABLE RELATING TO THE PRODUCT.**

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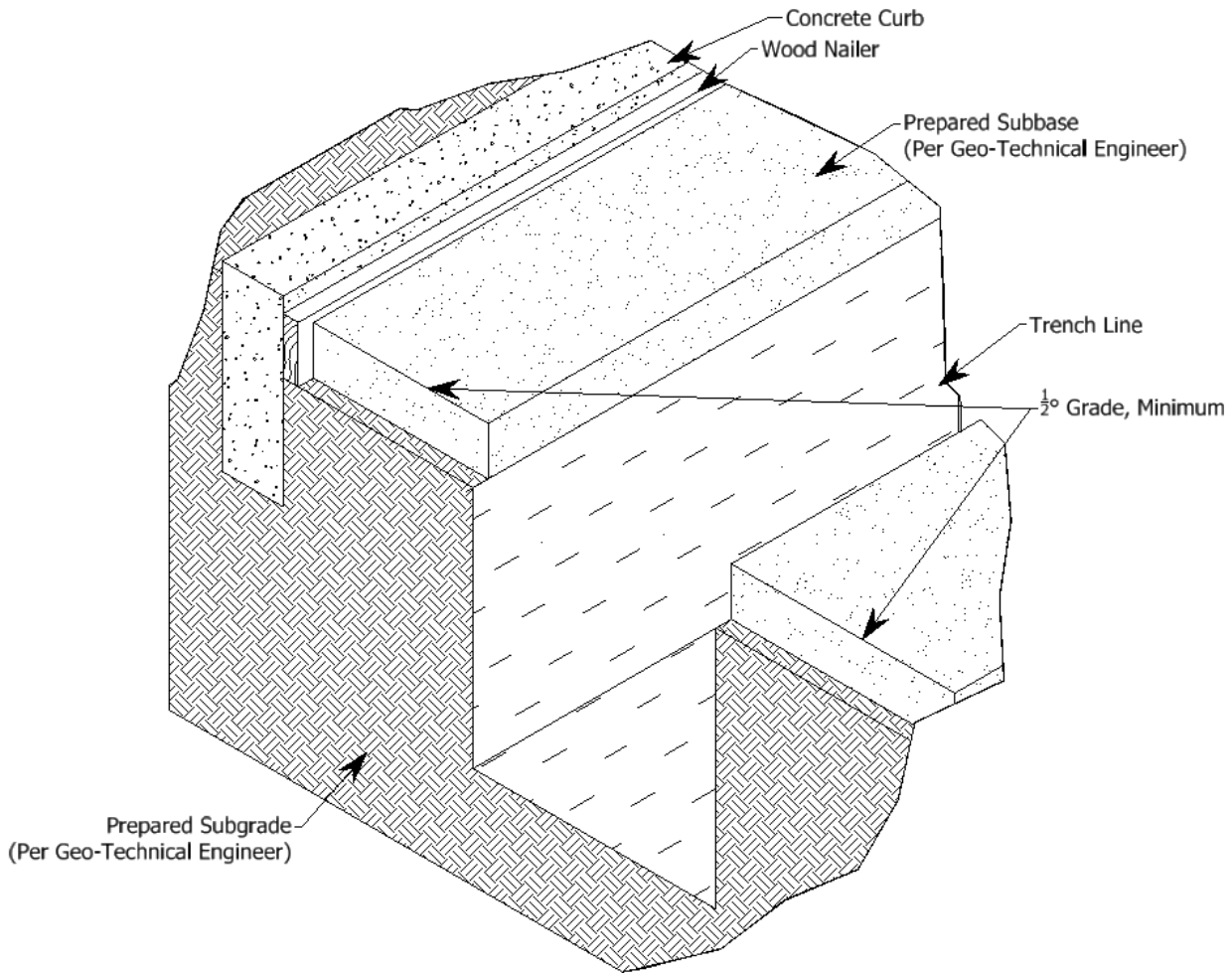


Figure 1

## AirField Field Cross Isometric, Typical

For Synthetic Turf Fields



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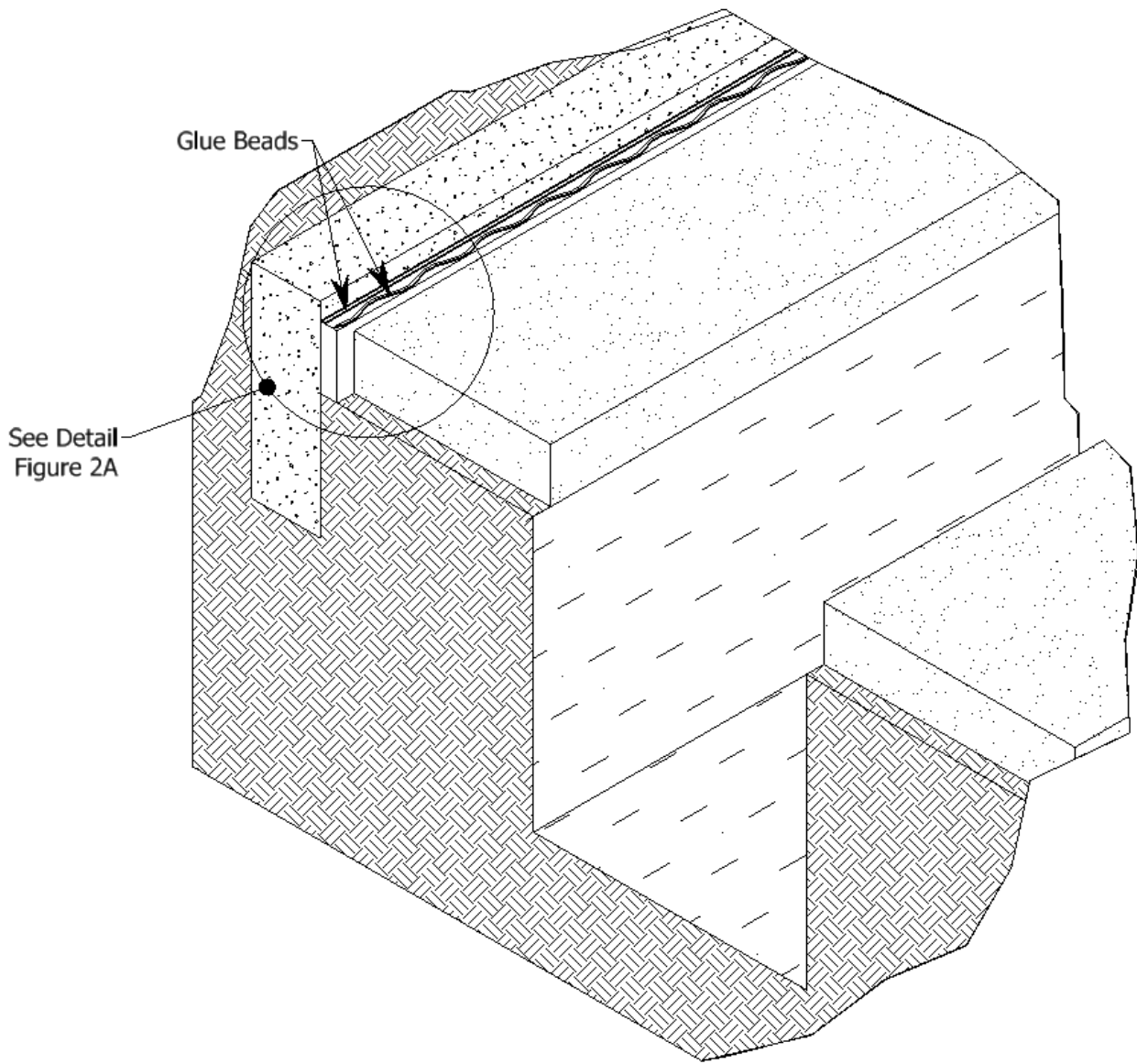


Figure 2



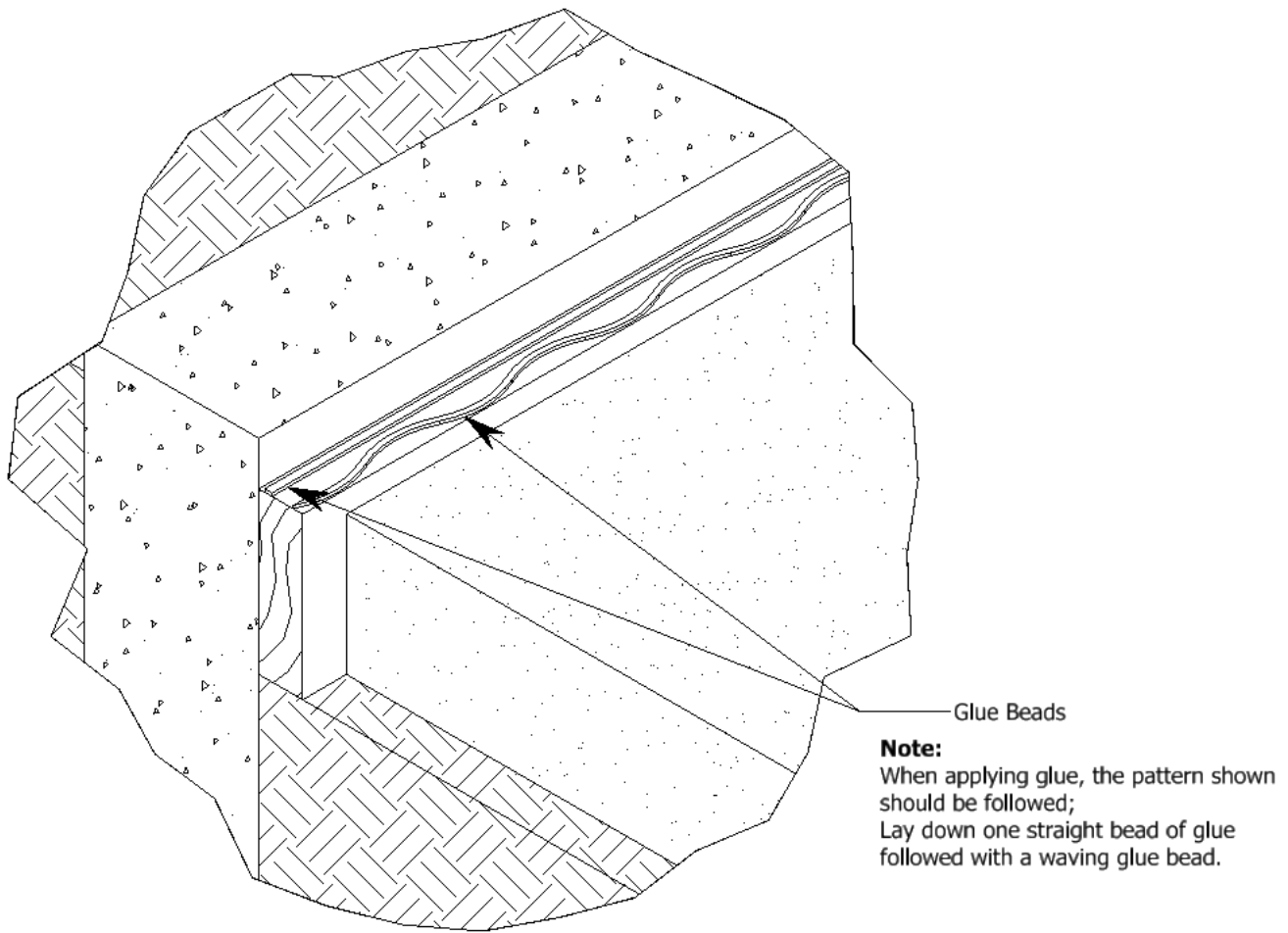


Figure 2A



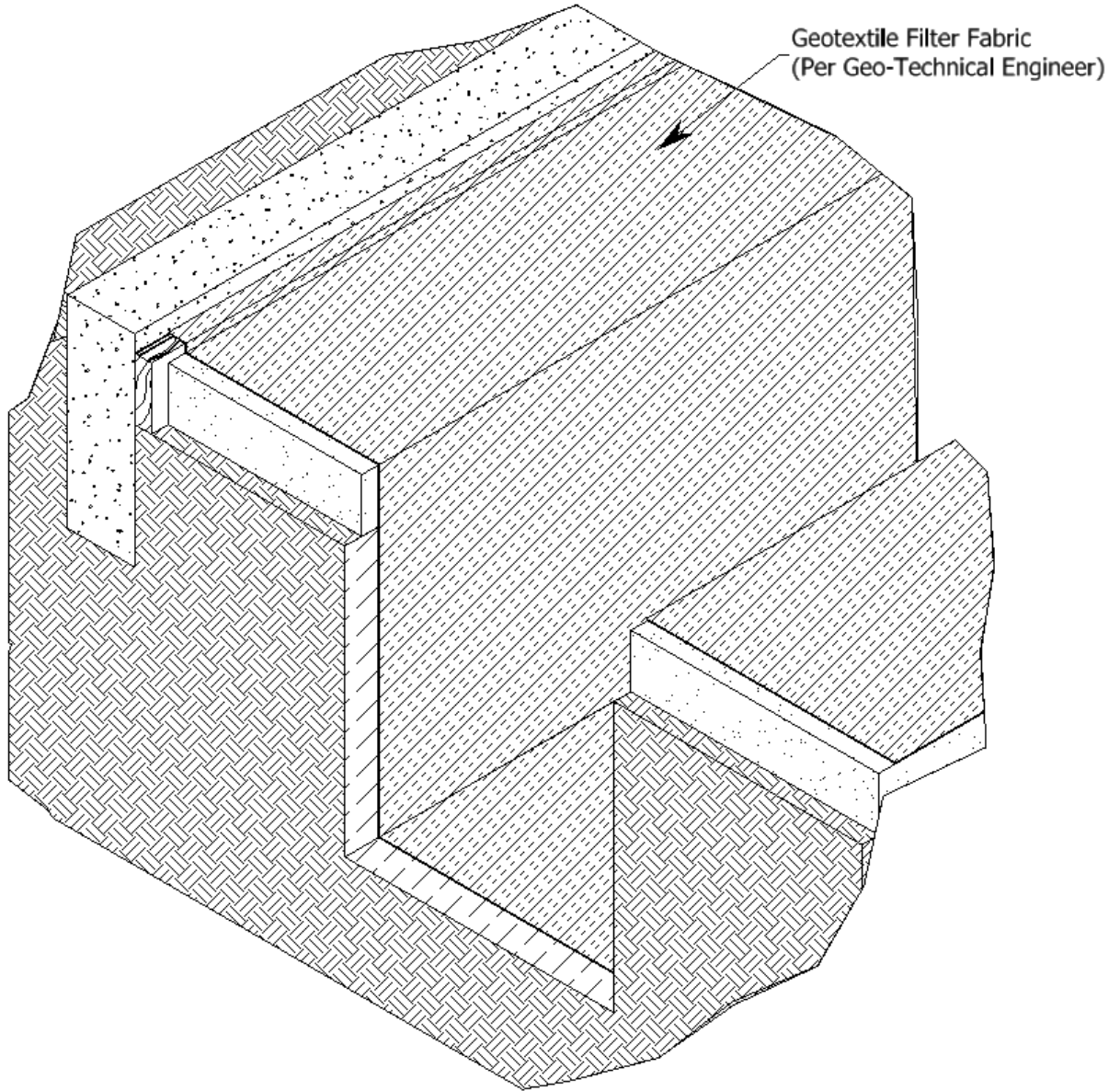


Figure 3



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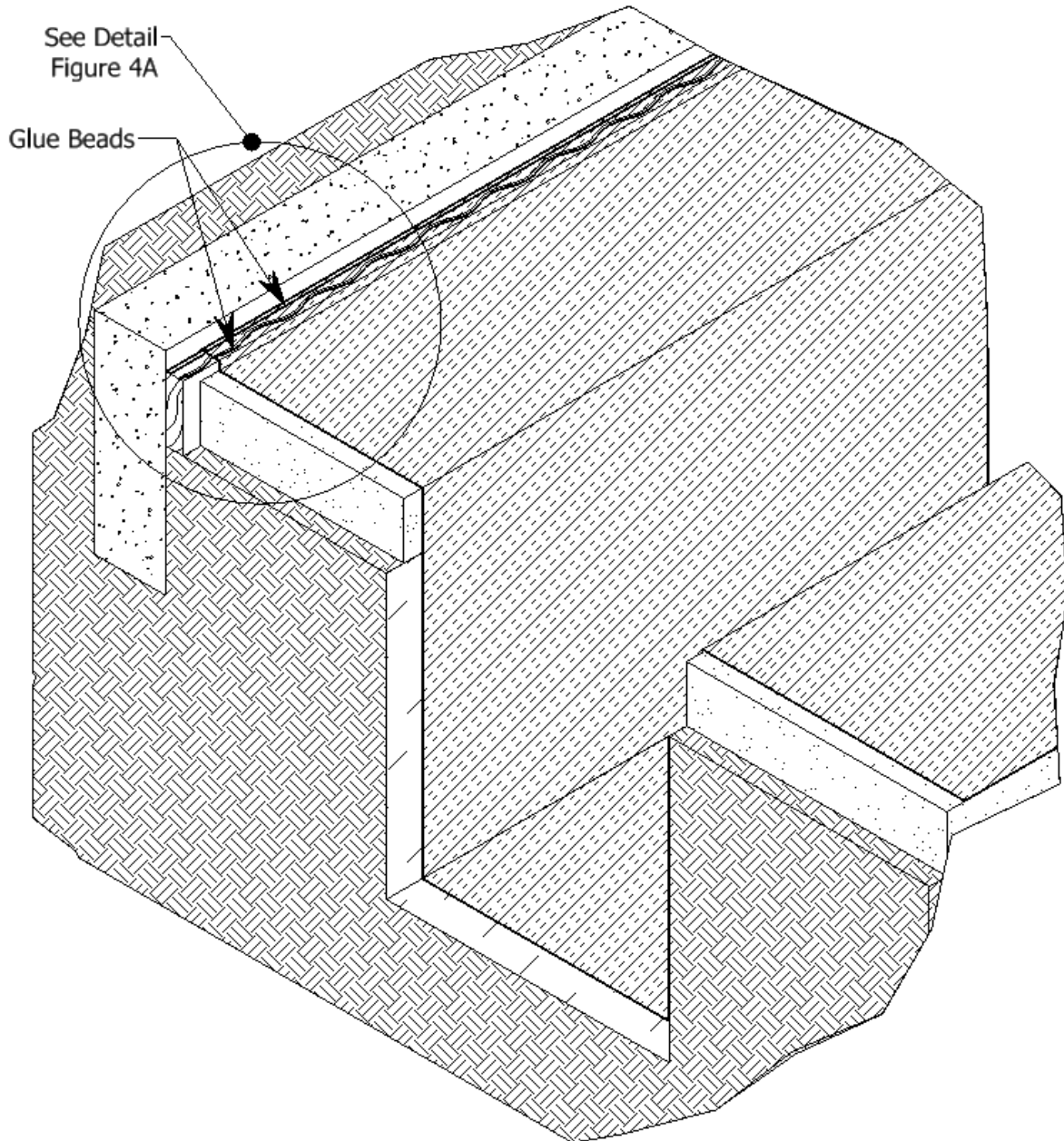


Figure 4



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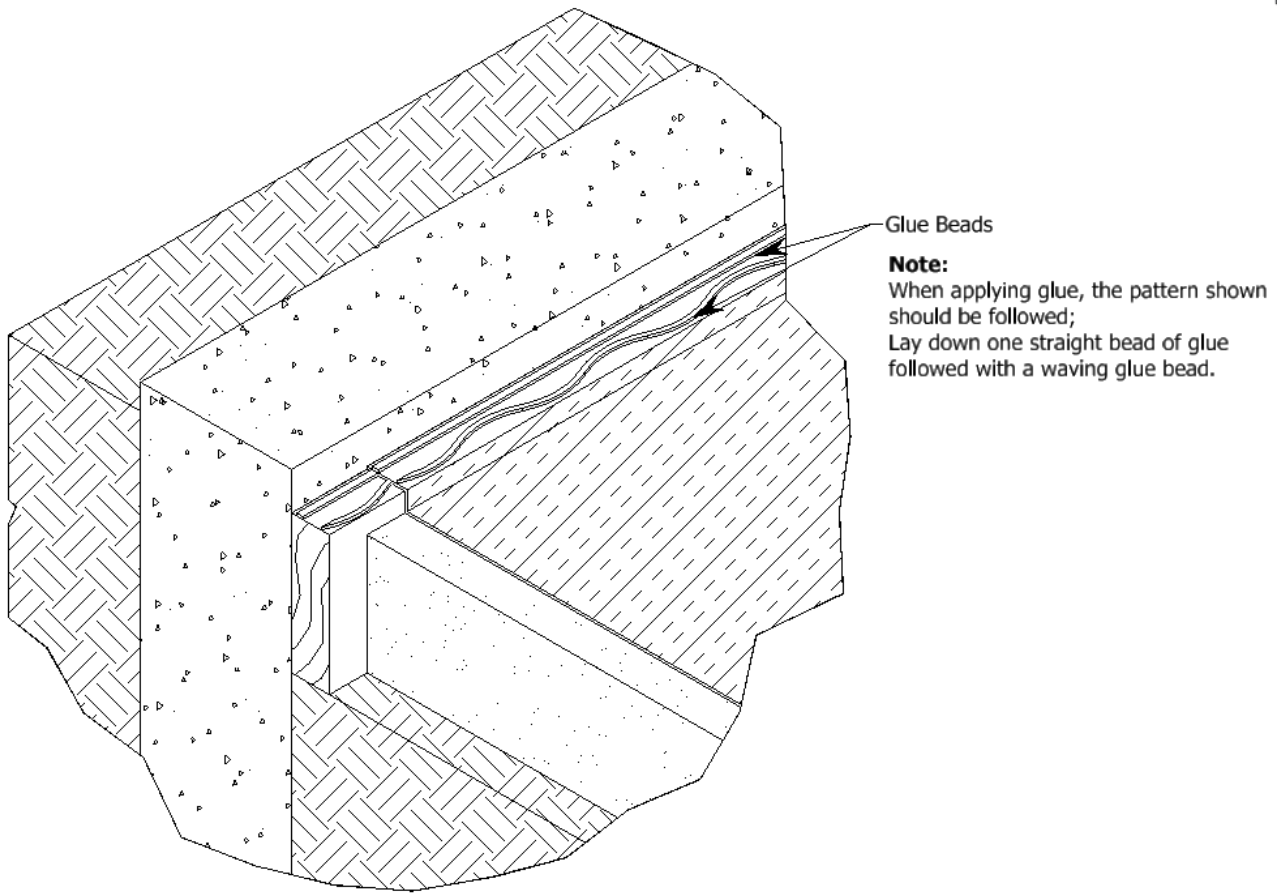


Figure 4A



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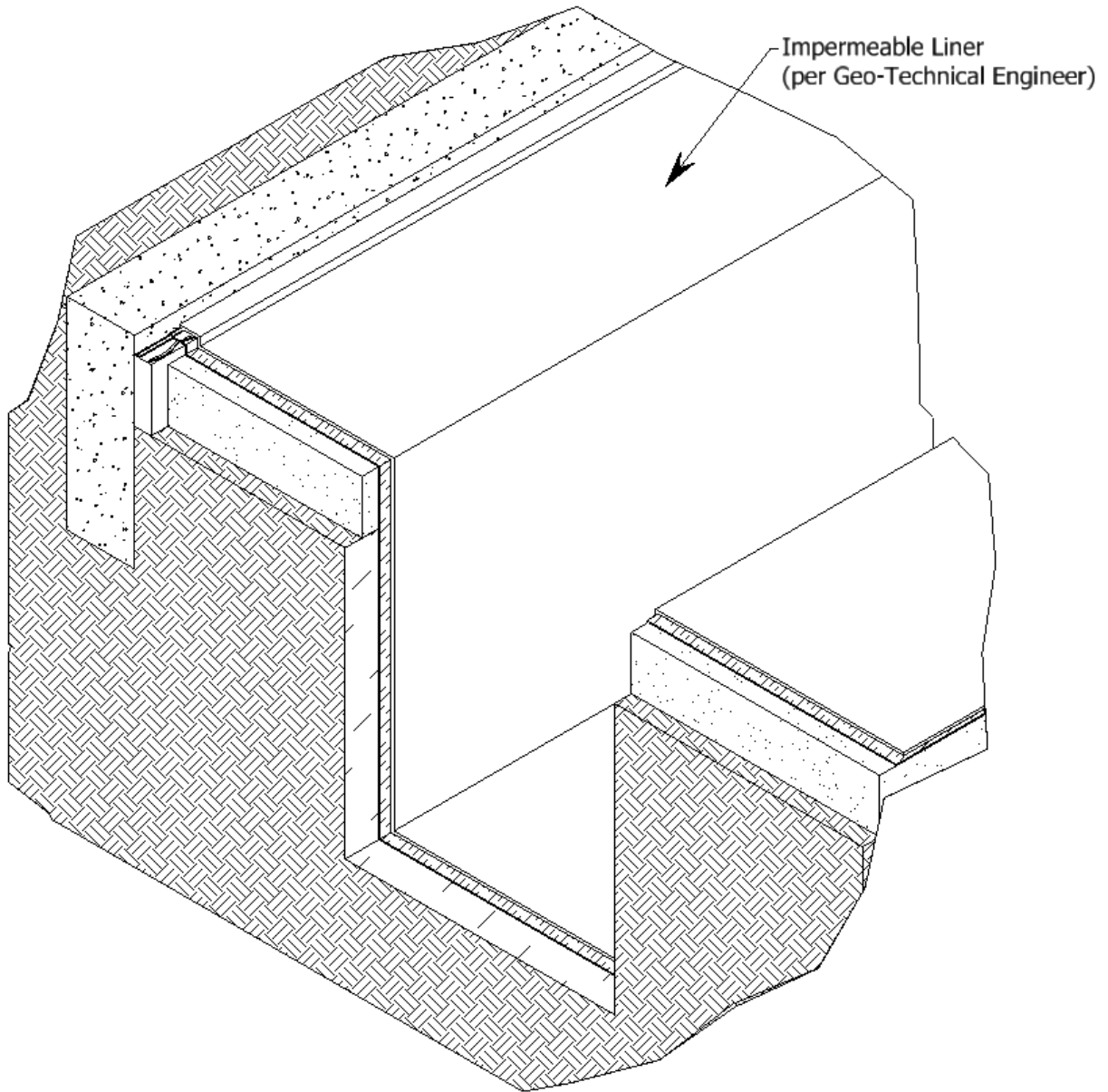


Figure 5



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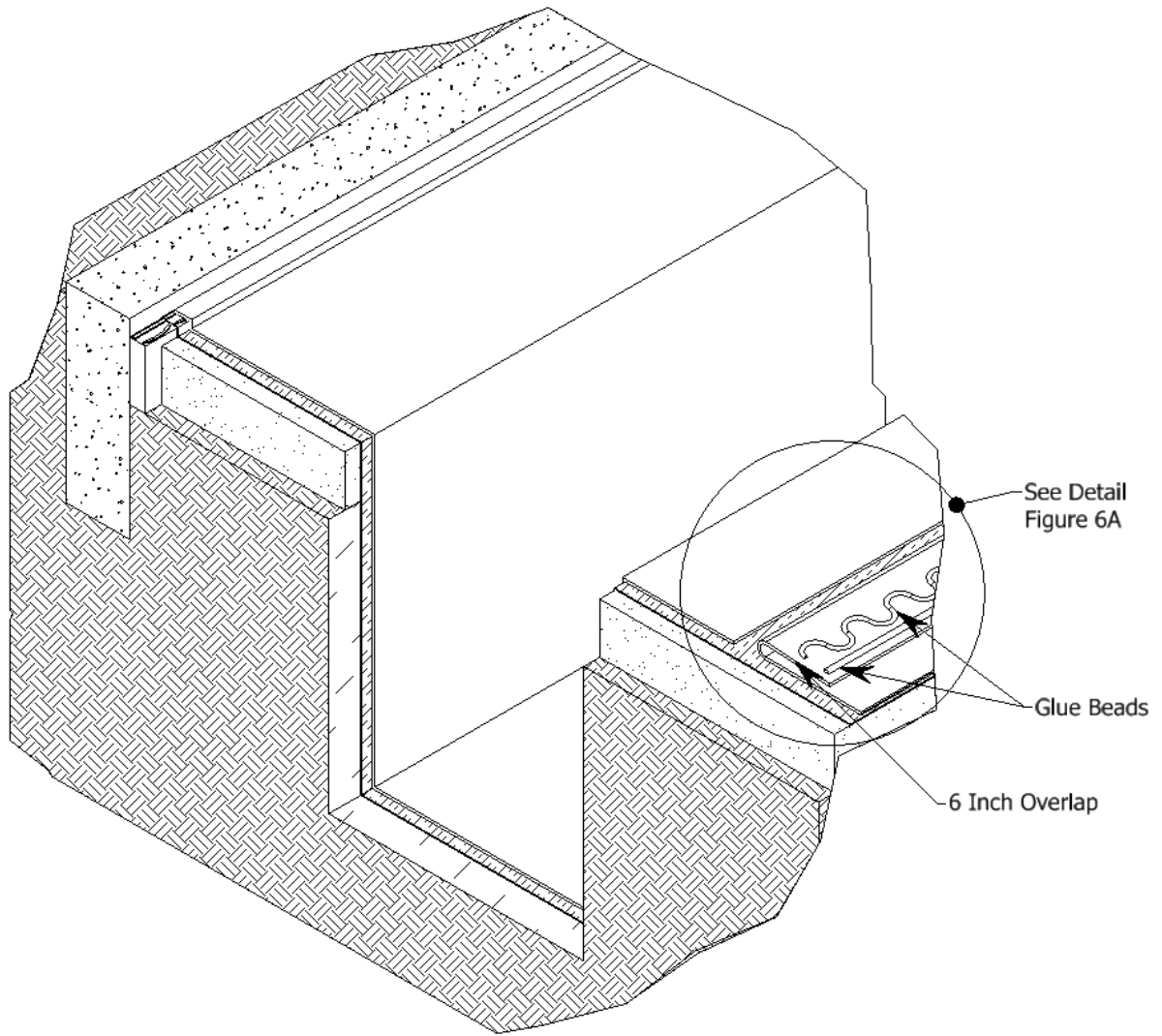


Figure 6



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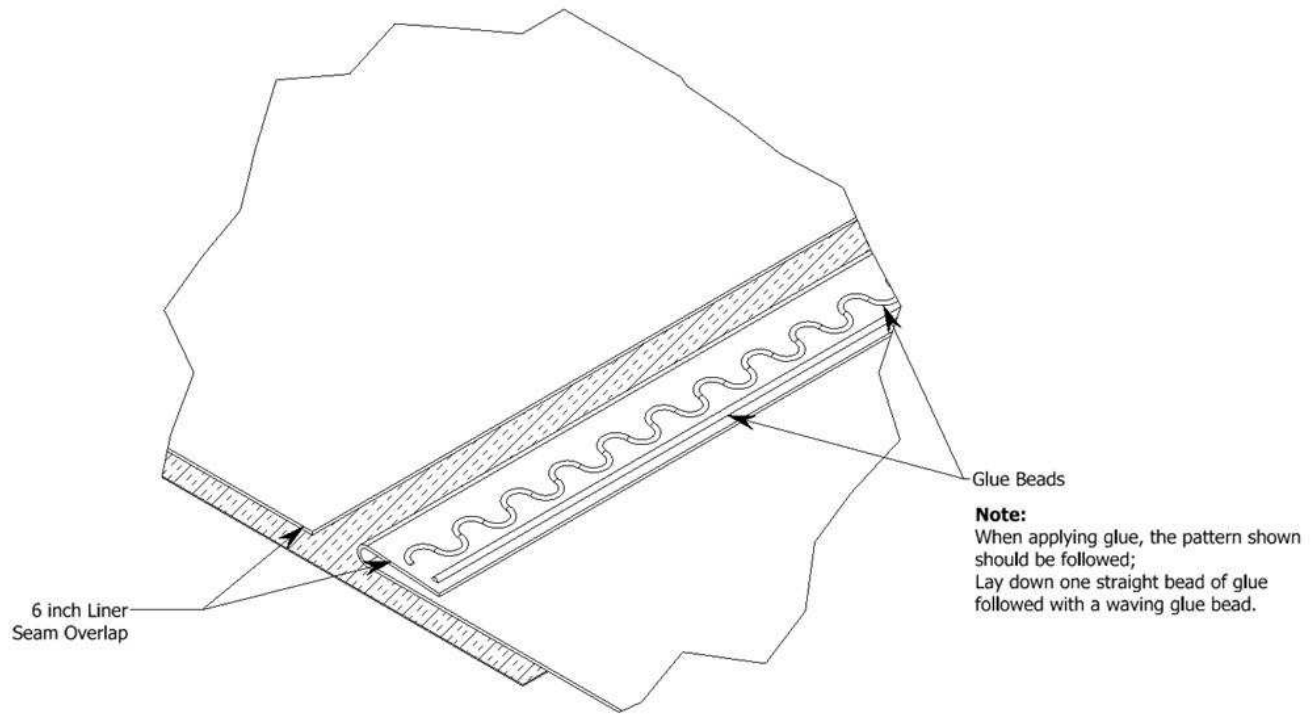


Figure 6A



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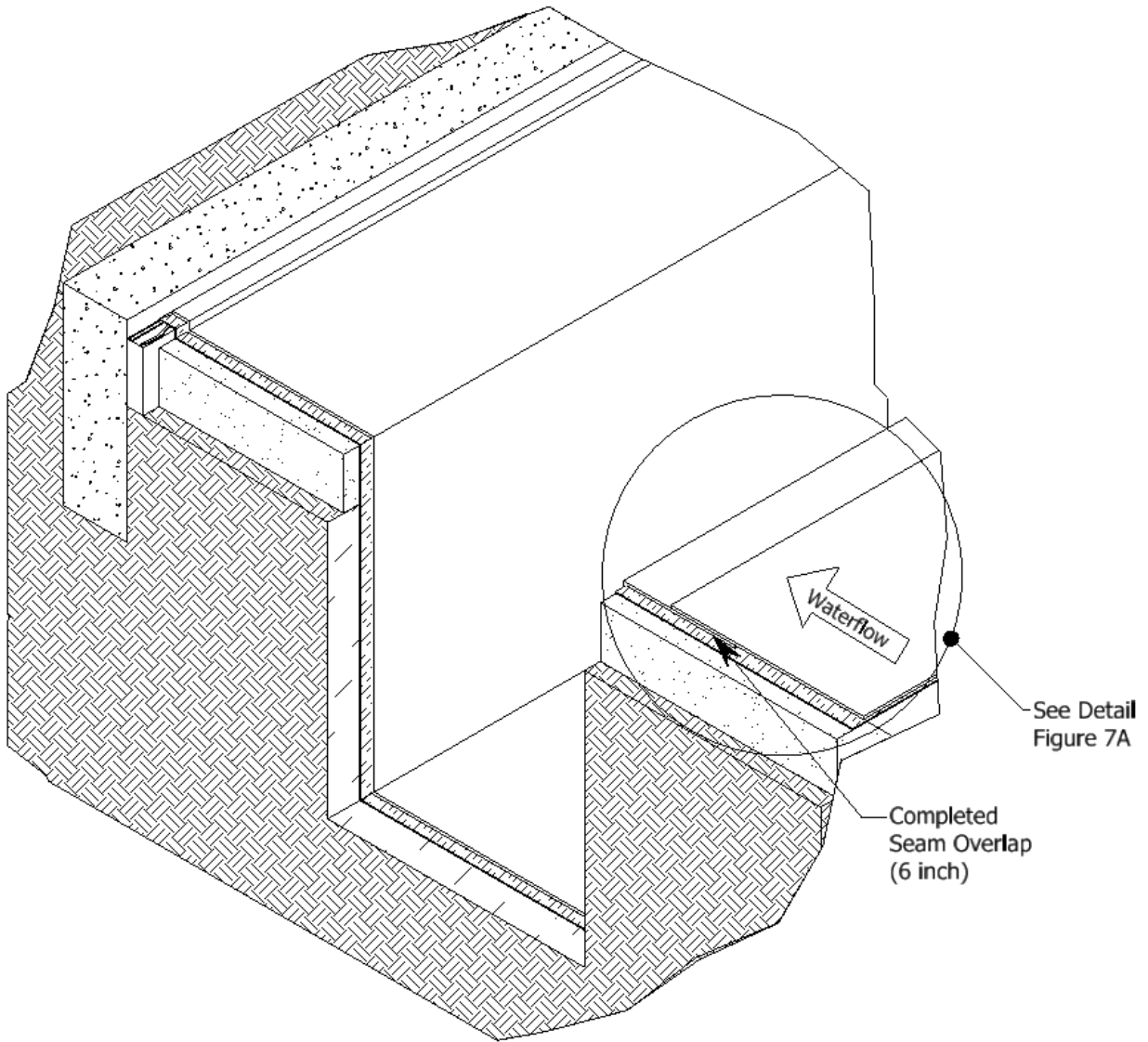


Figure 7



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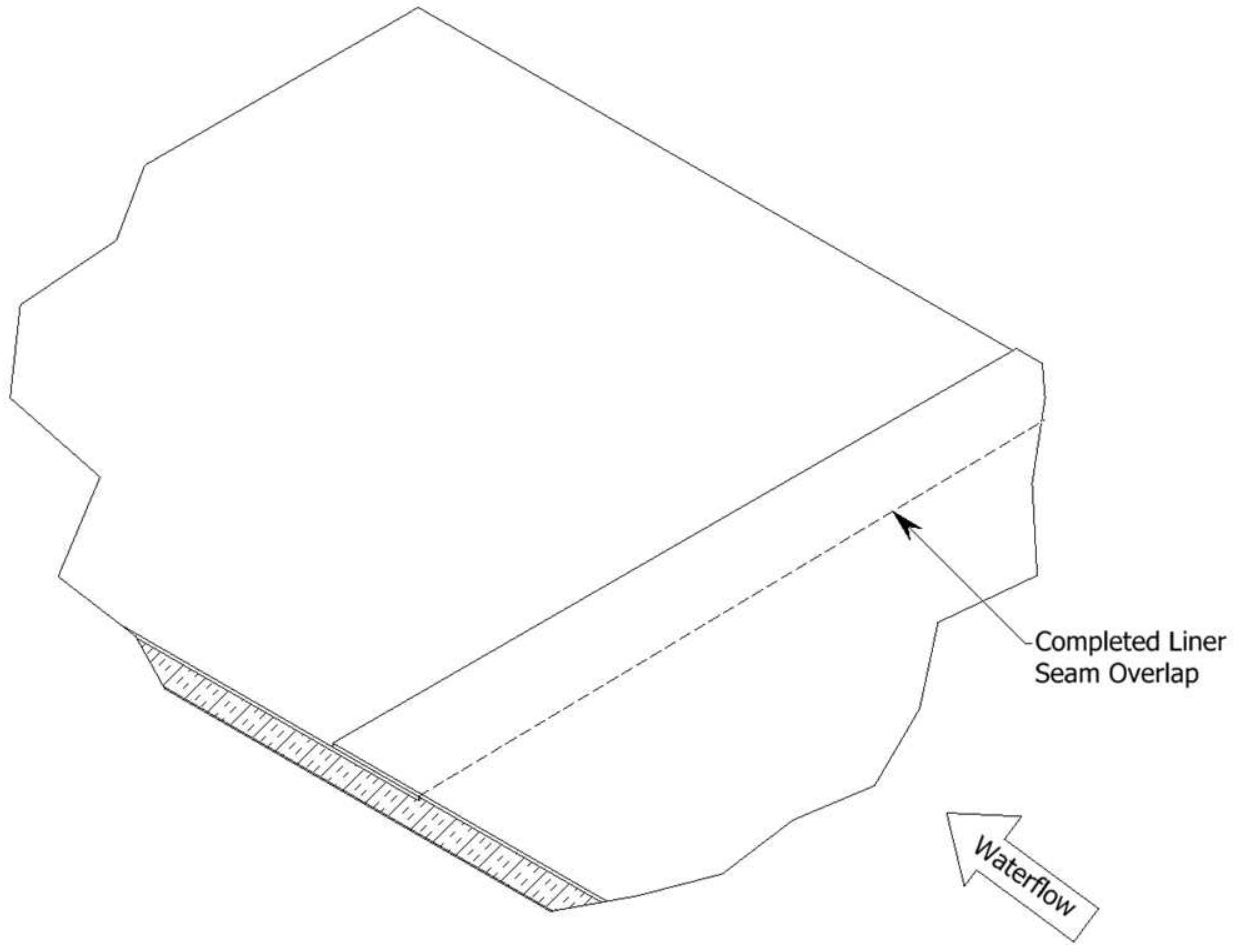


Figure 7A



### Typical Airfield® Liner Layout

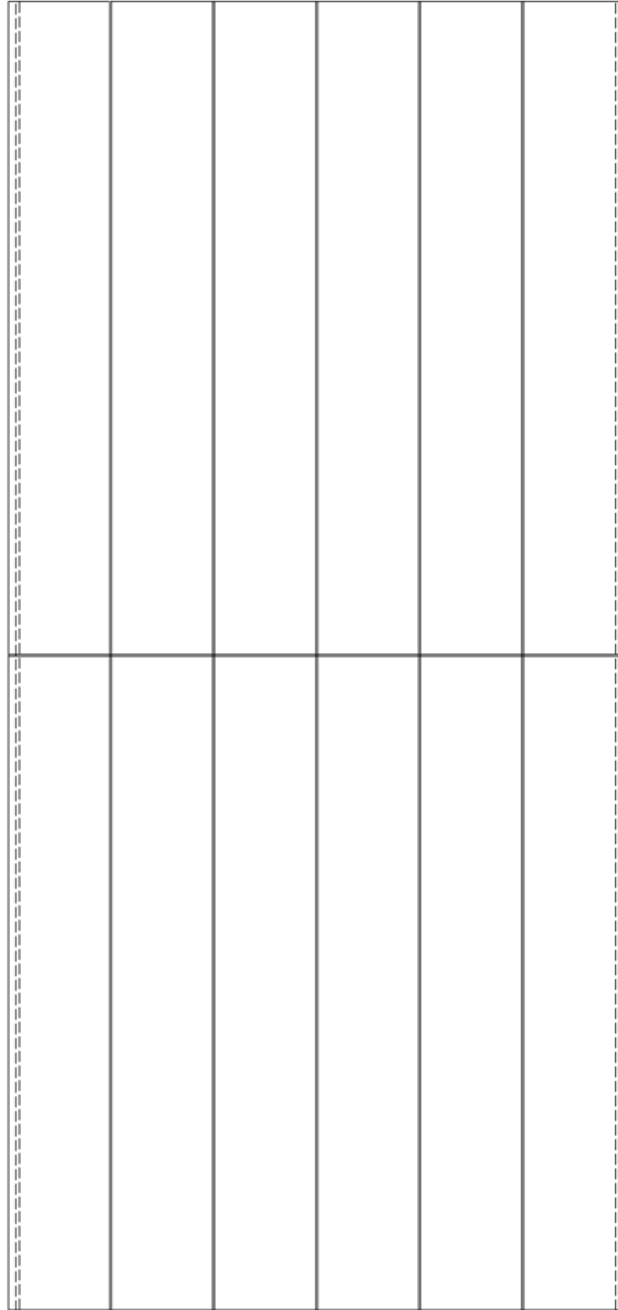


Figure 7B





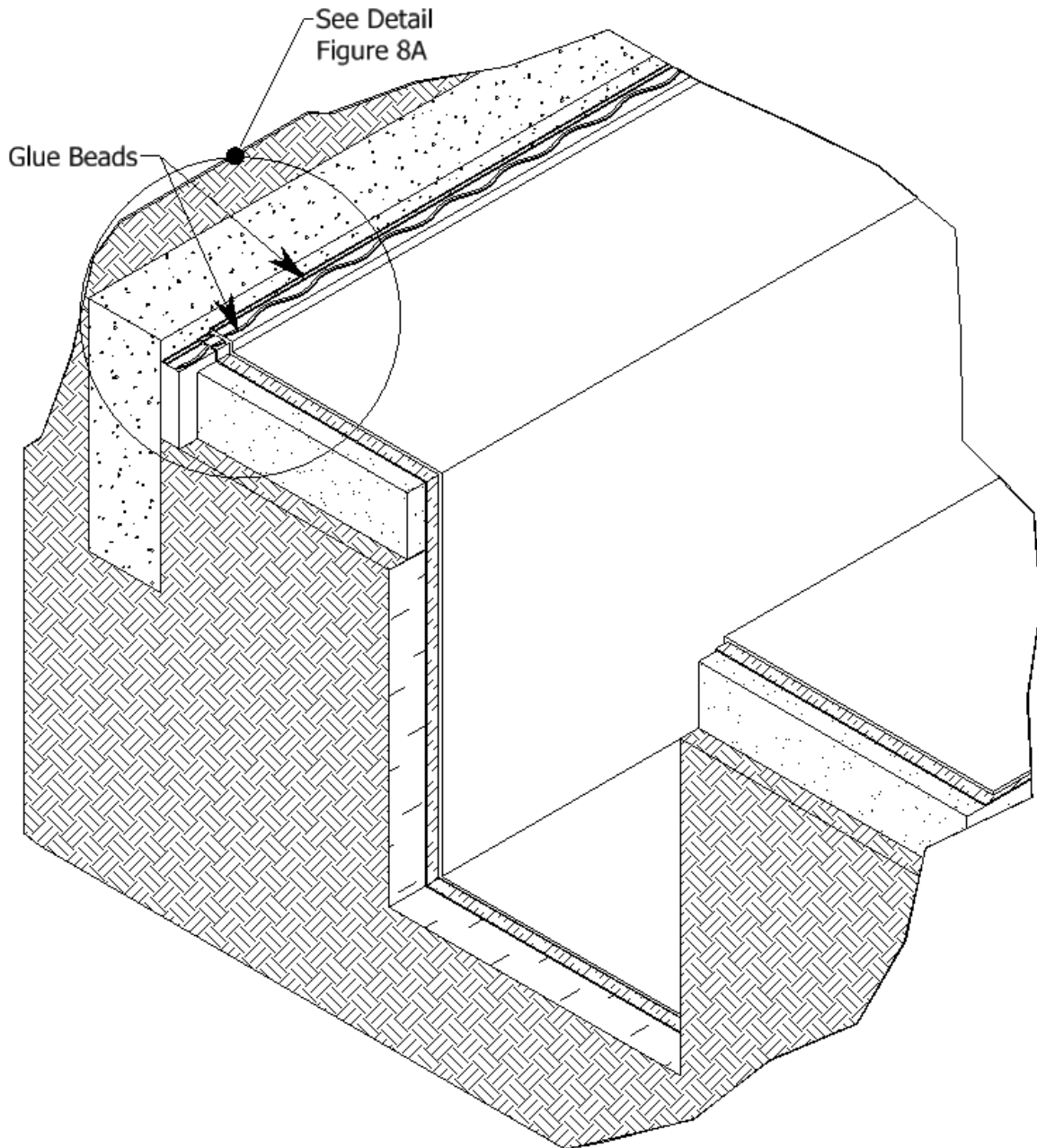


Figure 8



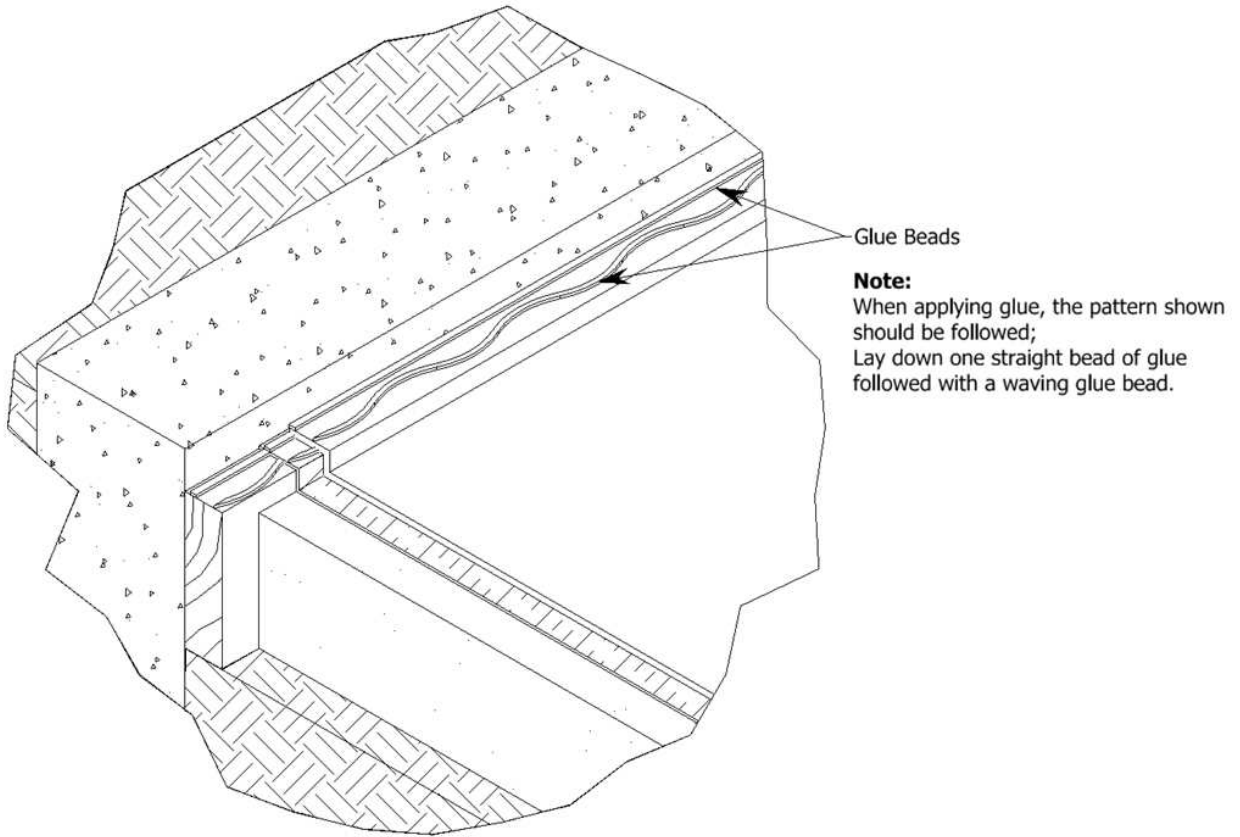


Figure 8A



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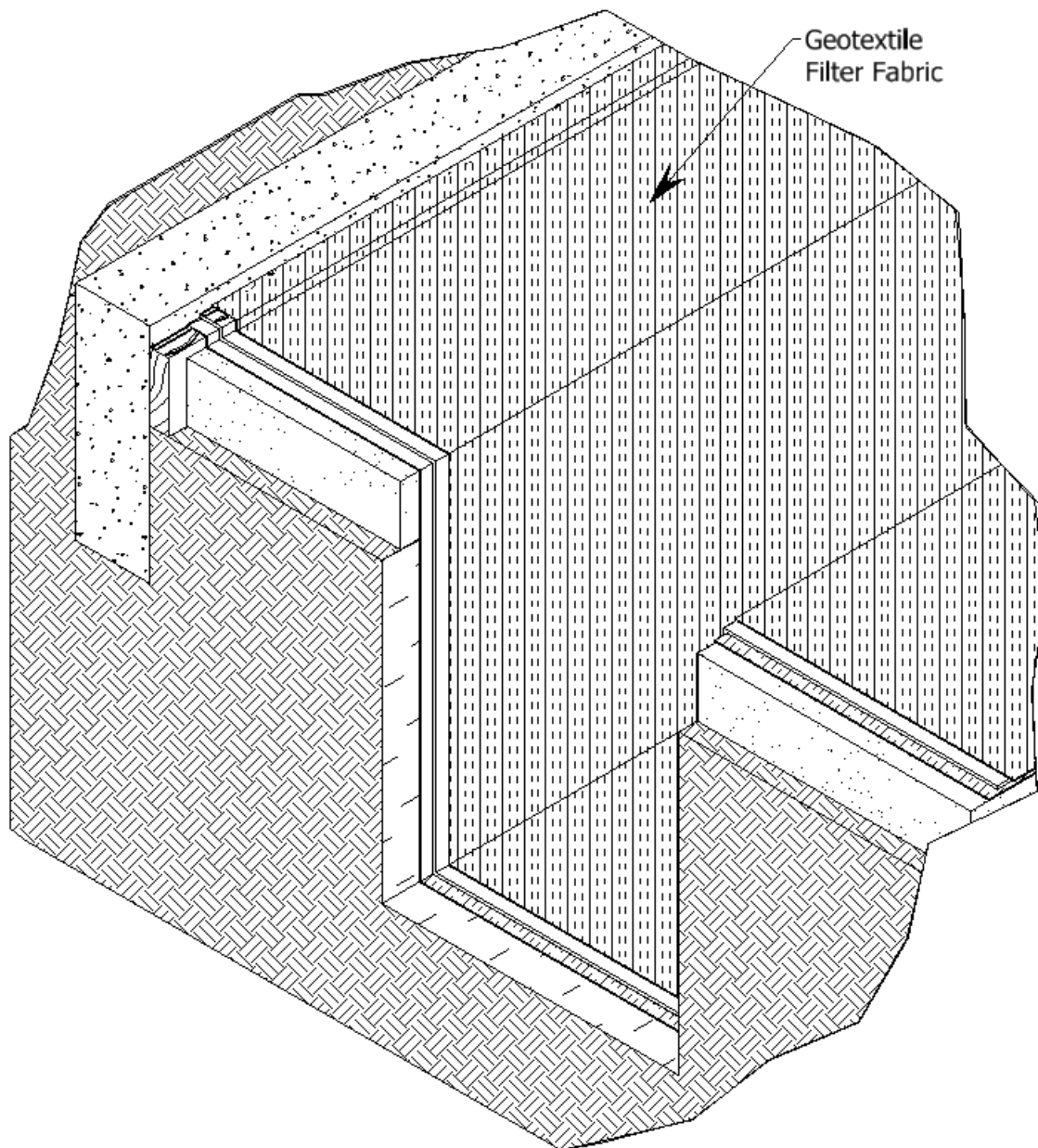


Figure 9



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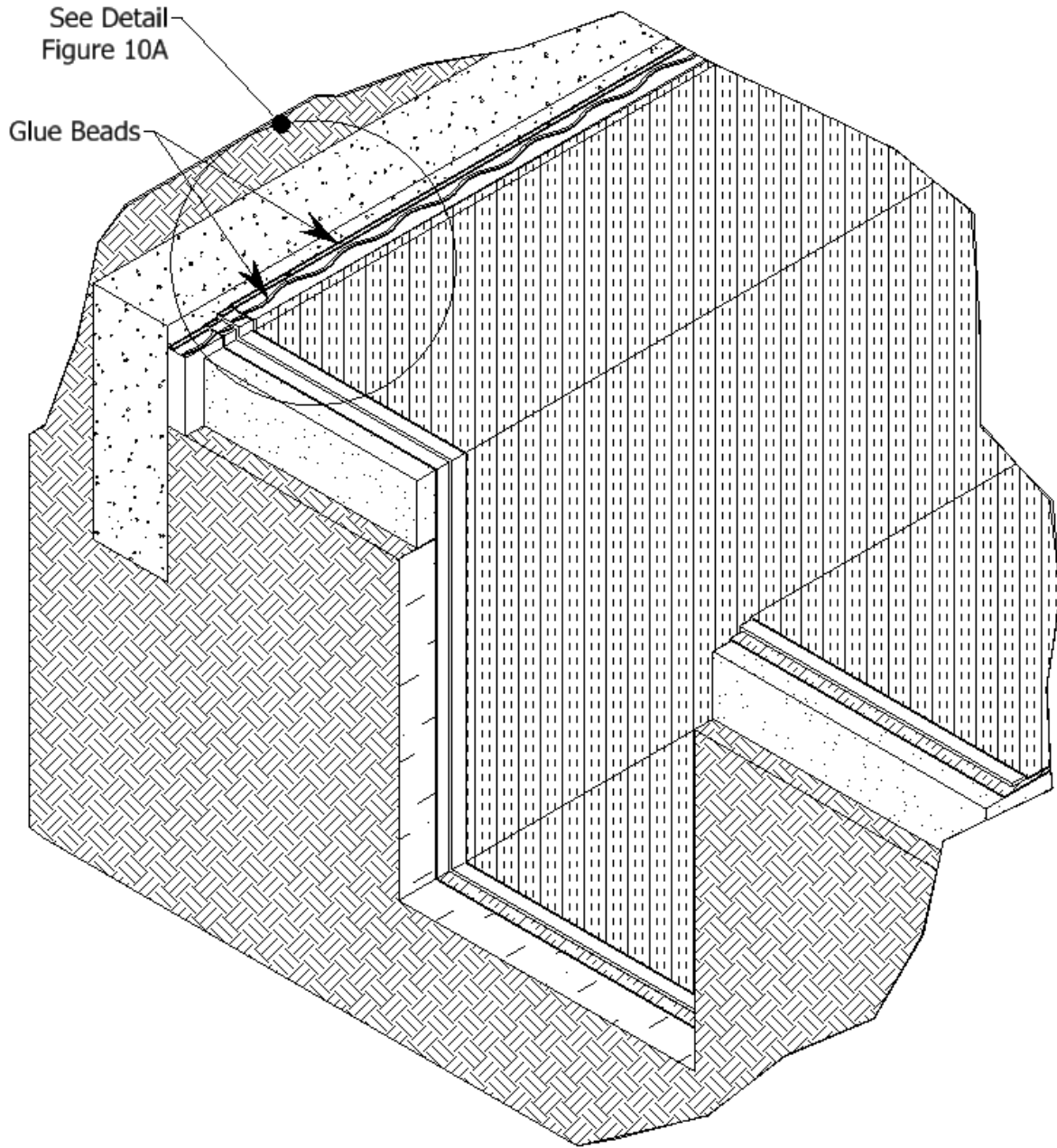


Figure 10XX



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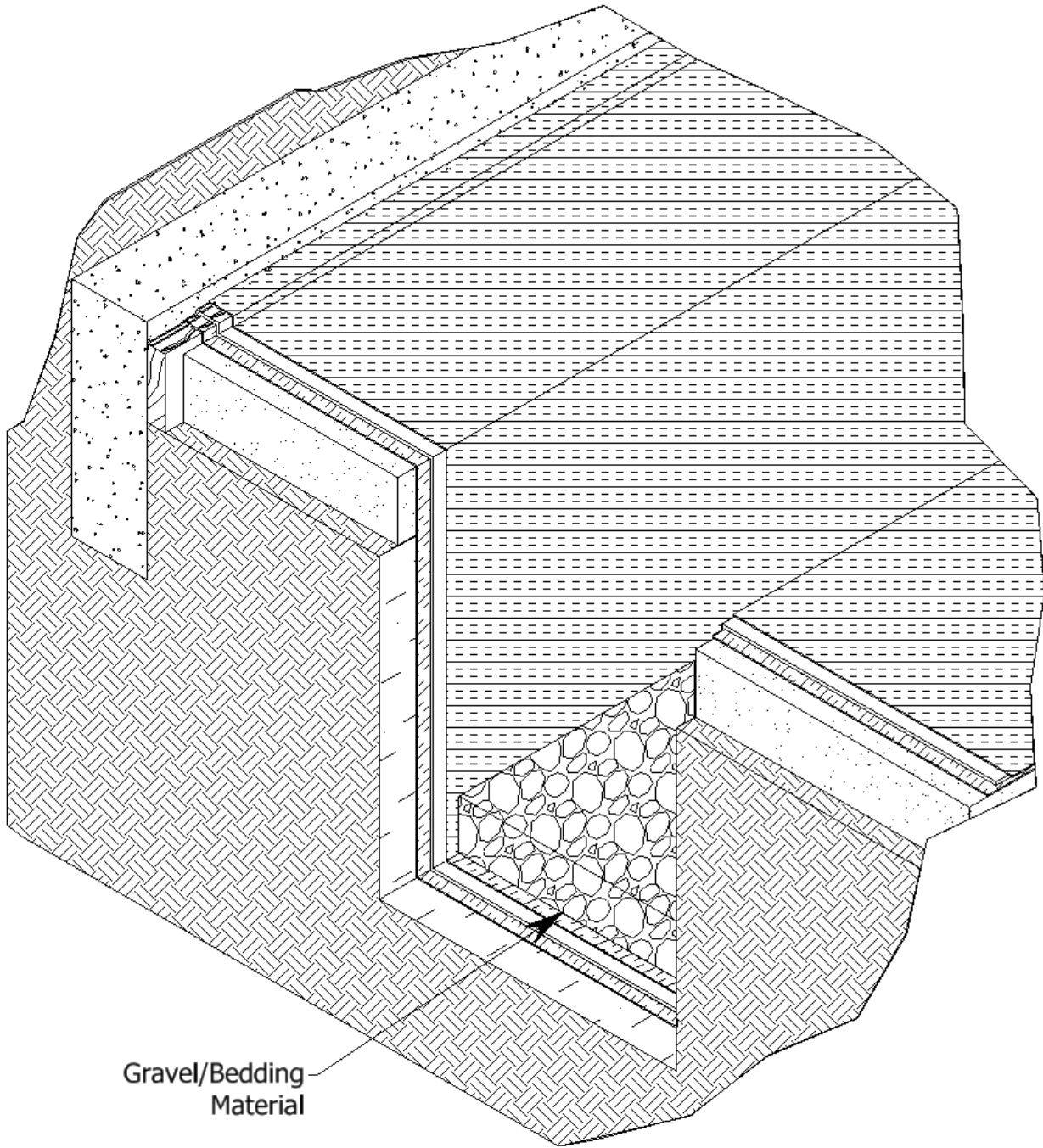


Figure 10



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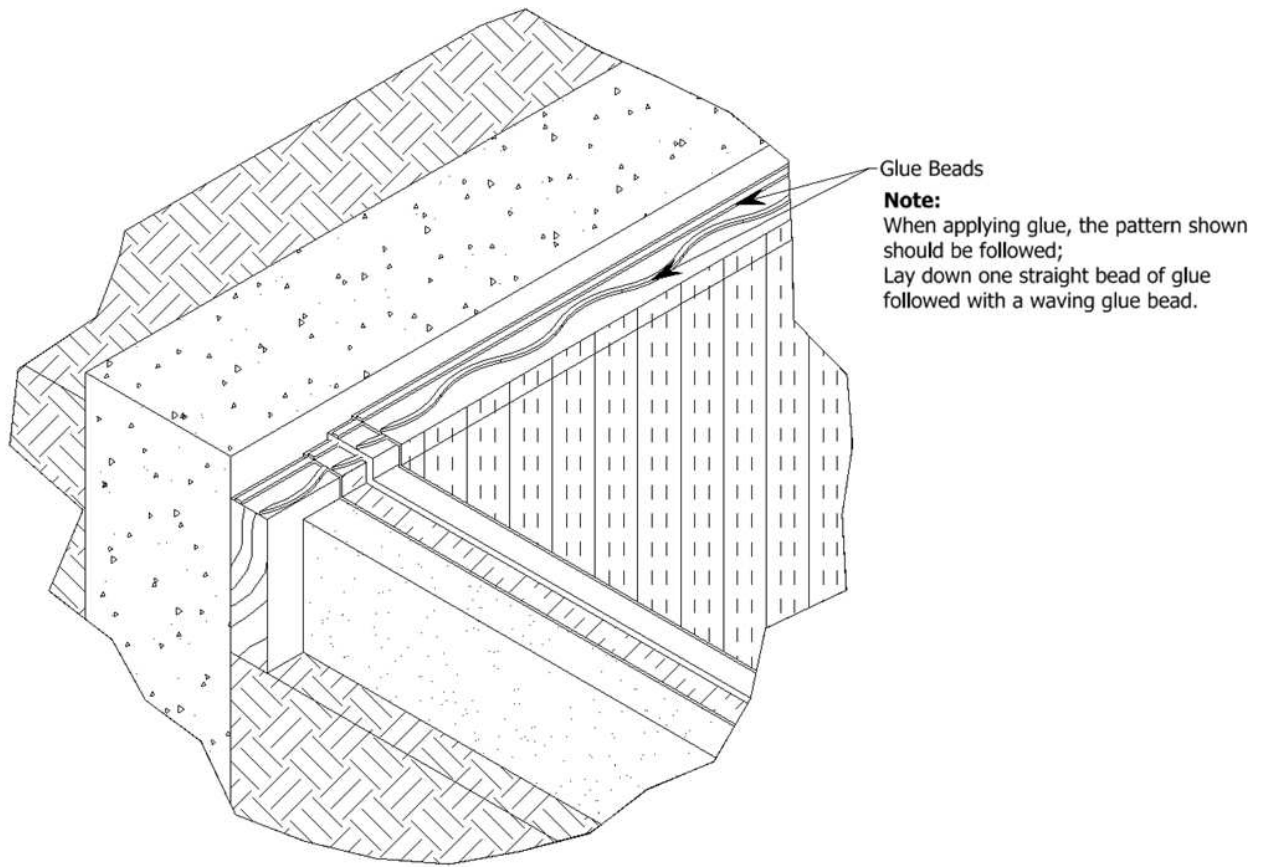


Figure 10A



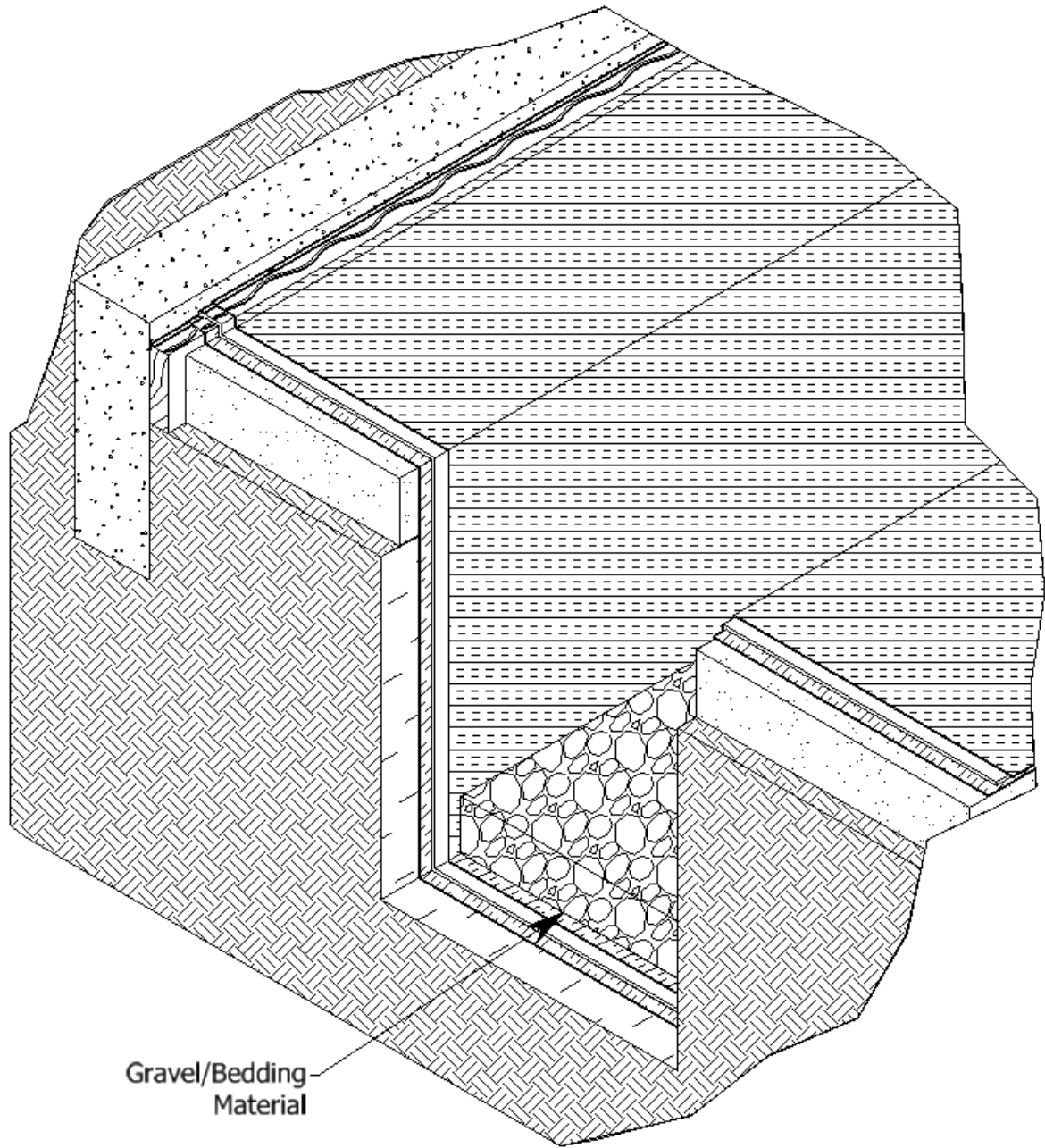


Figure 11XX



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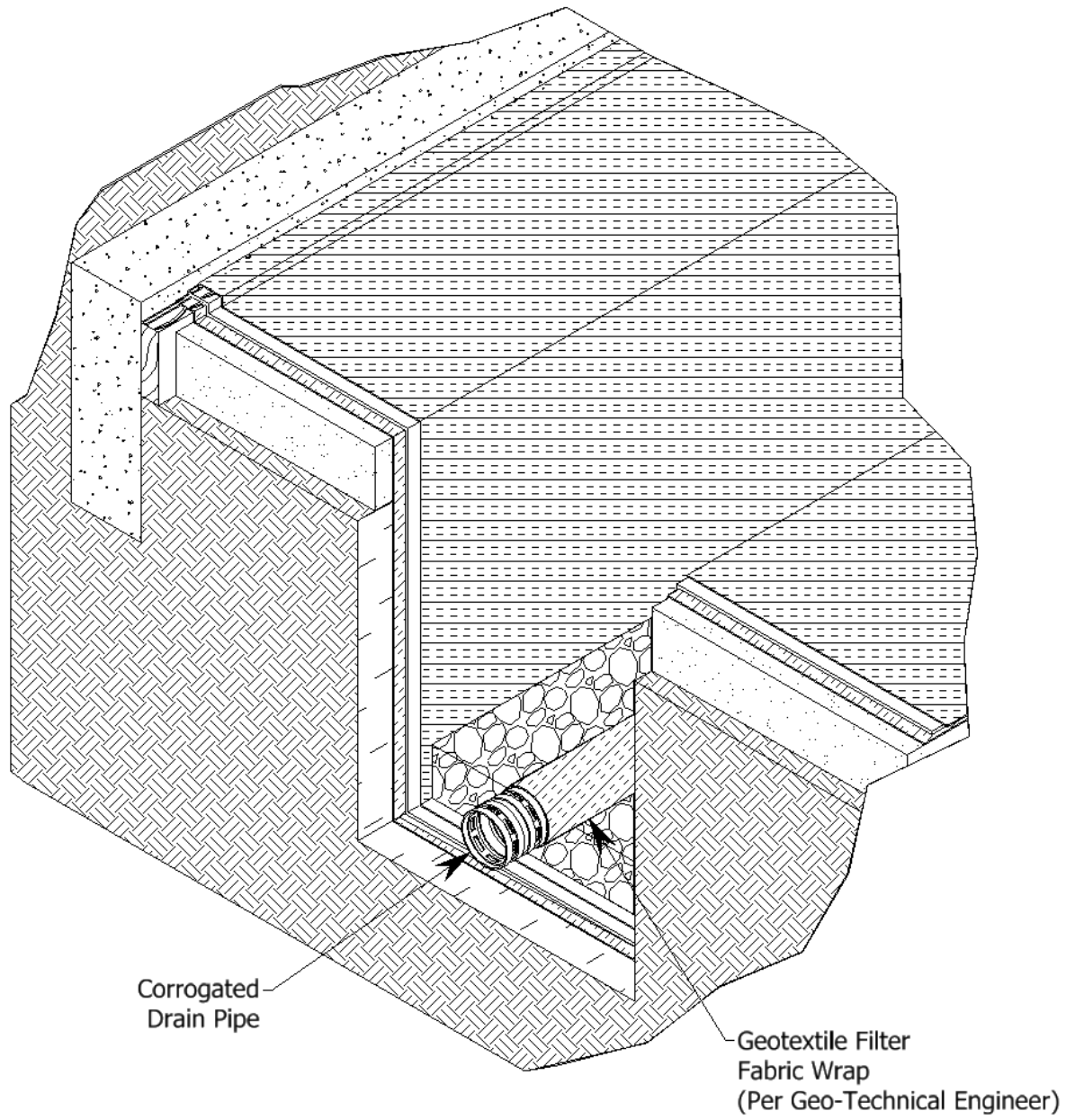


Figure 11





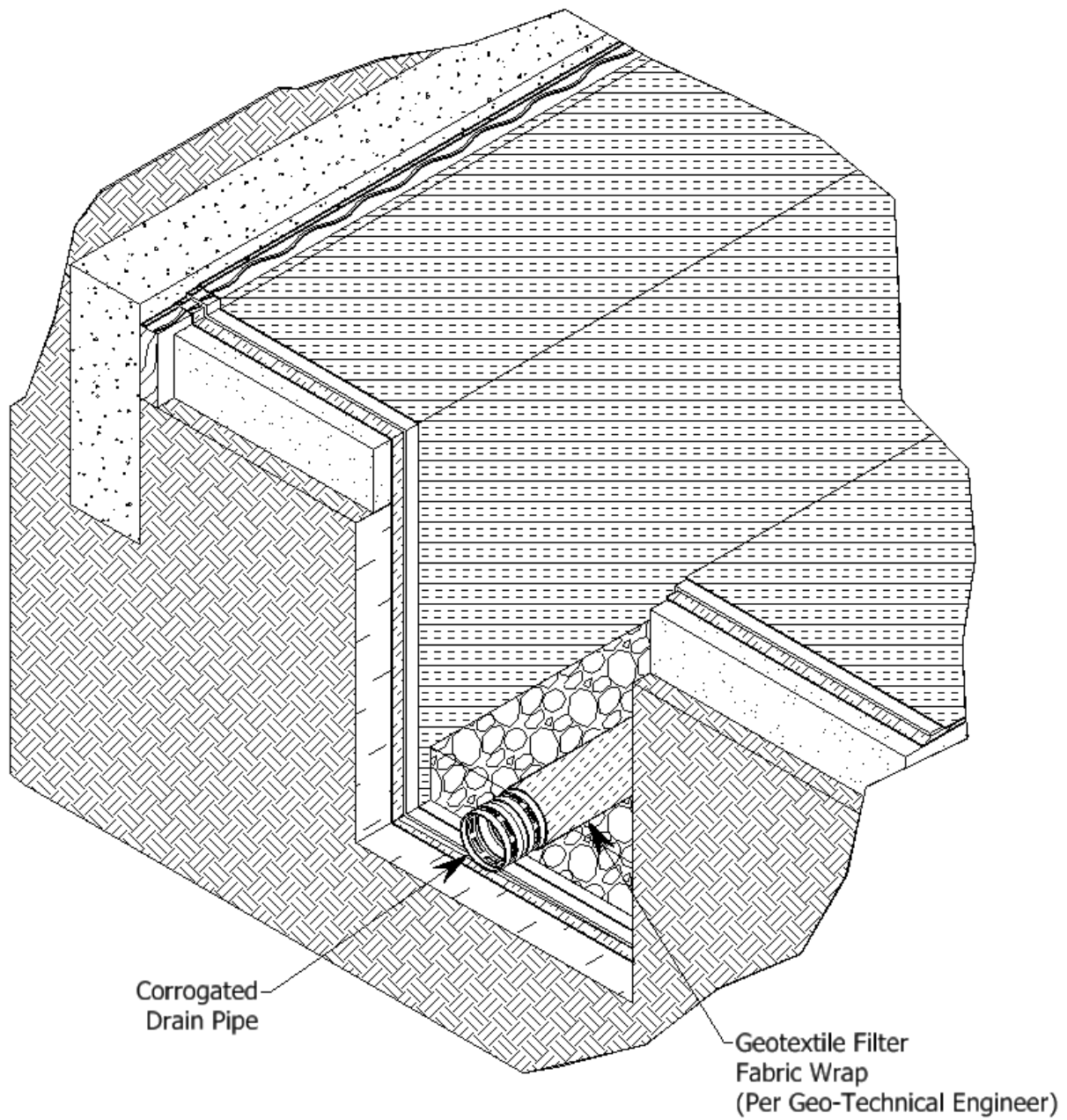


Figure 12XX



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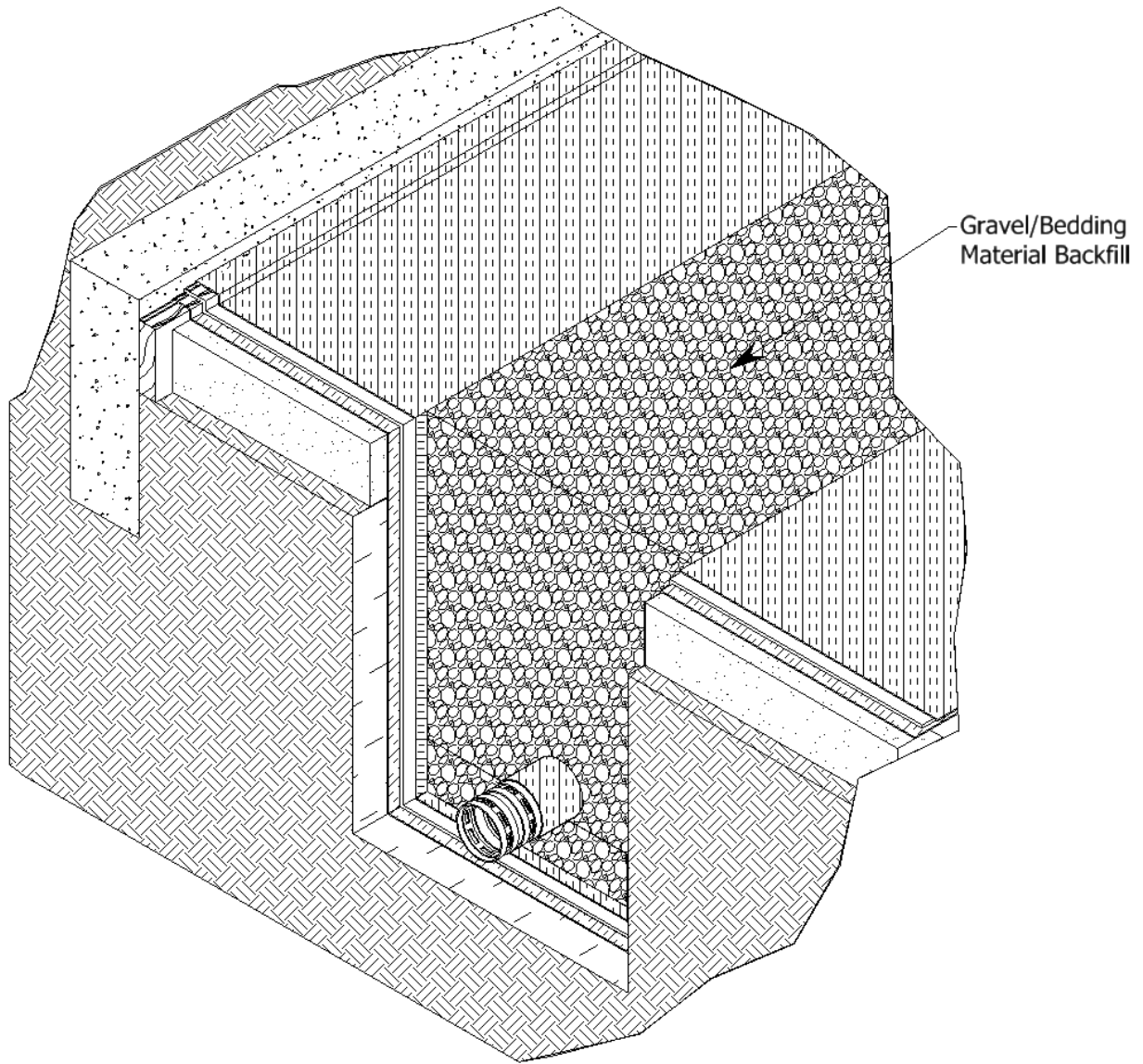


Figure 12



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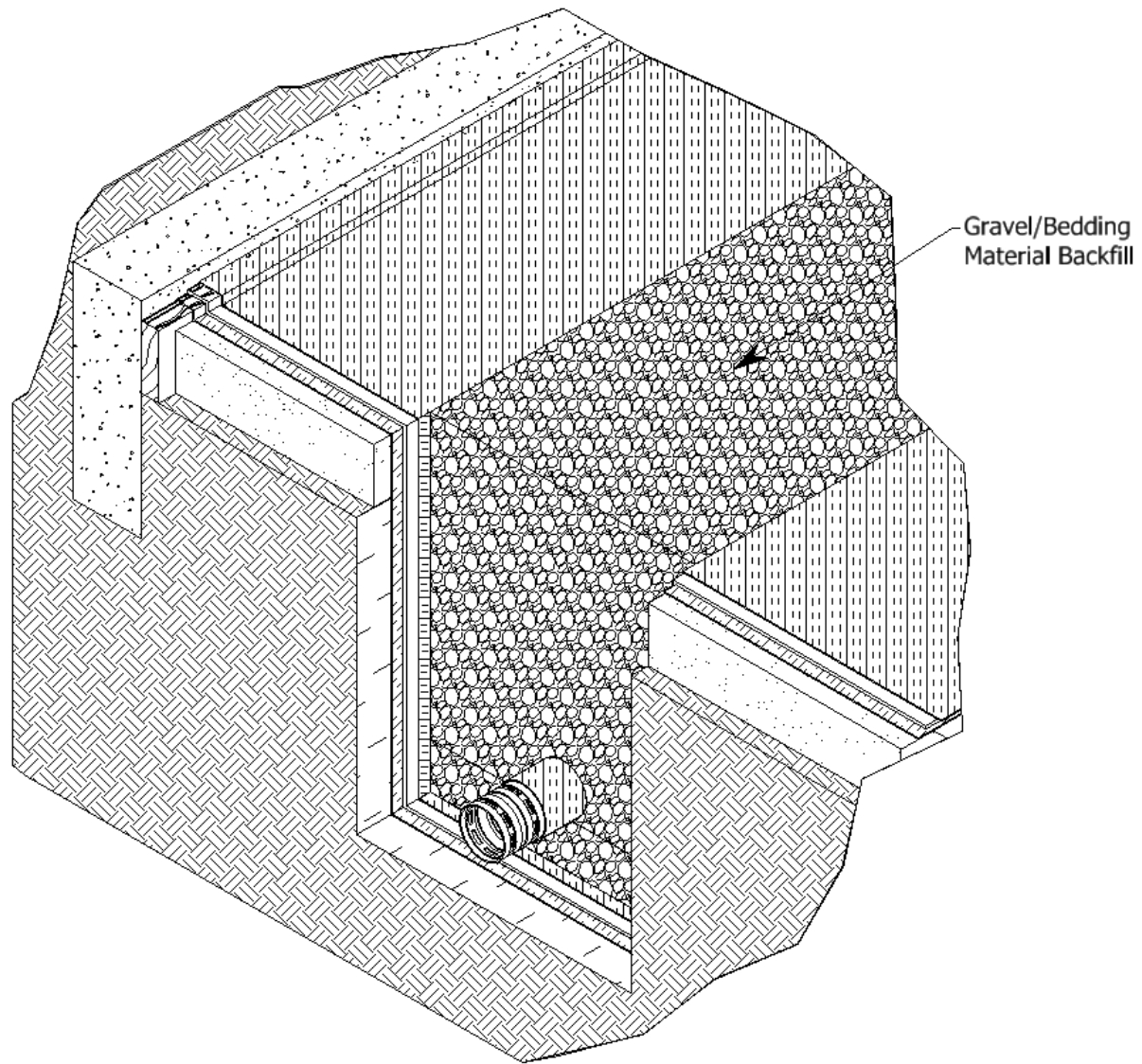


Figure 13XX



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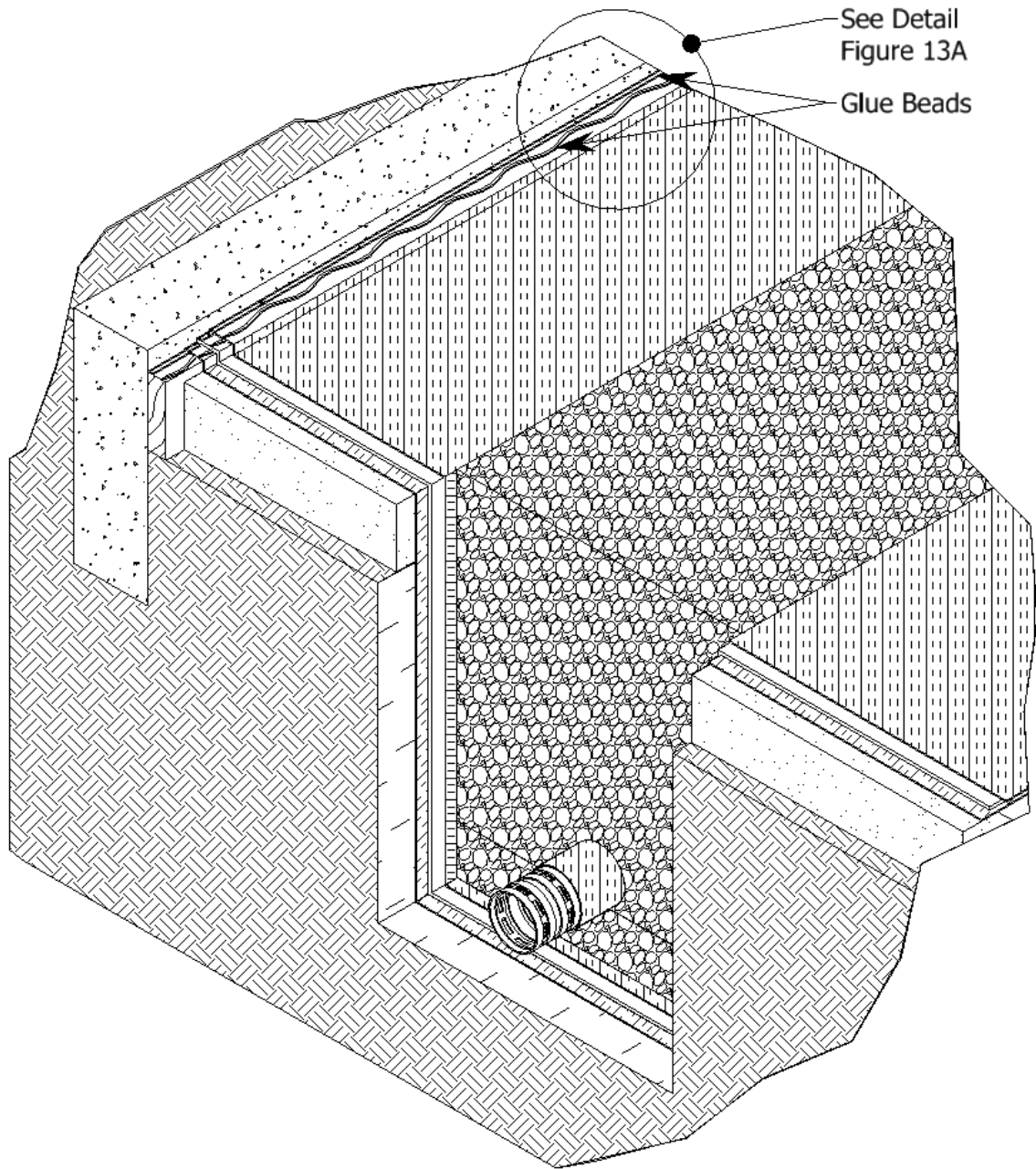


Figure 13



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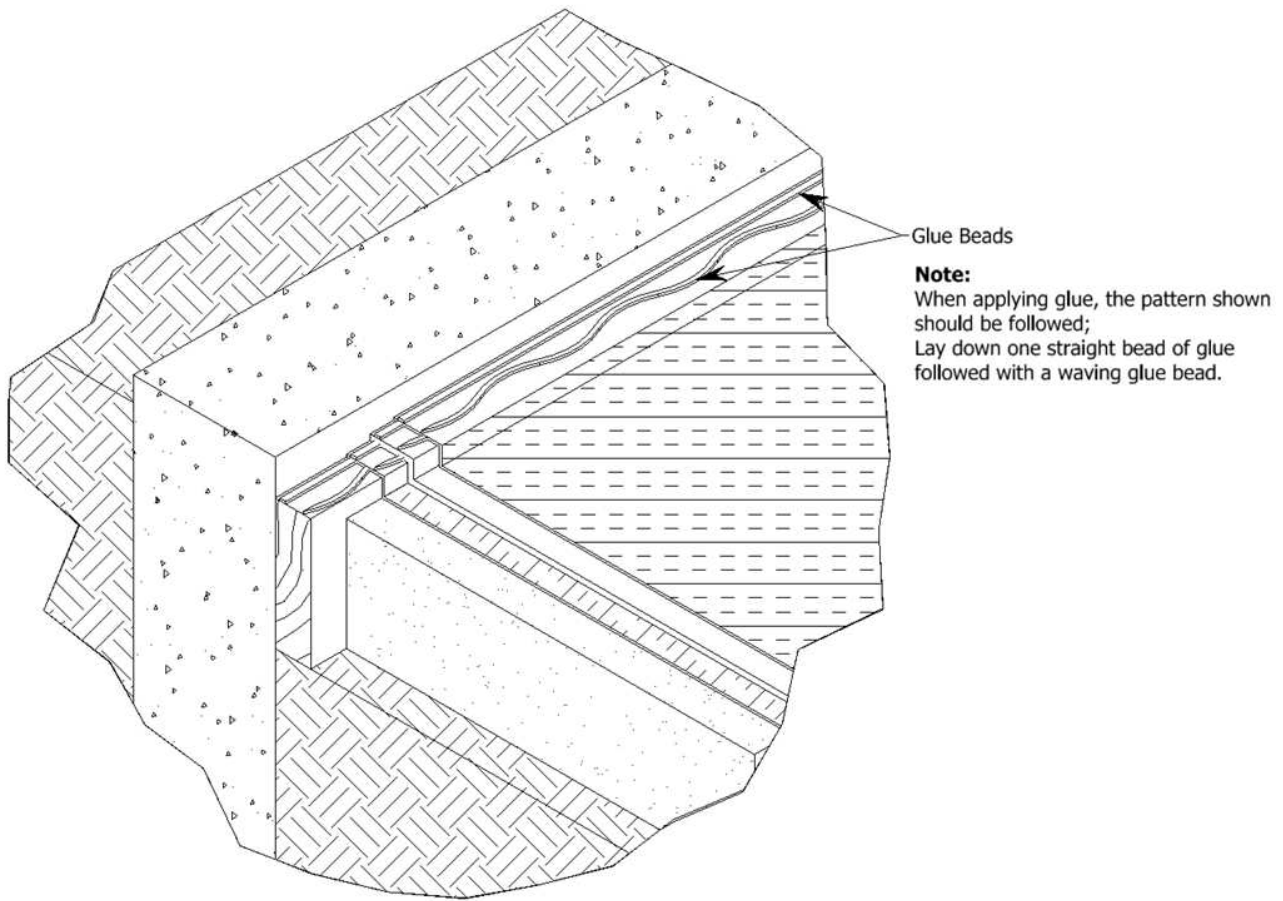


Figure 13A



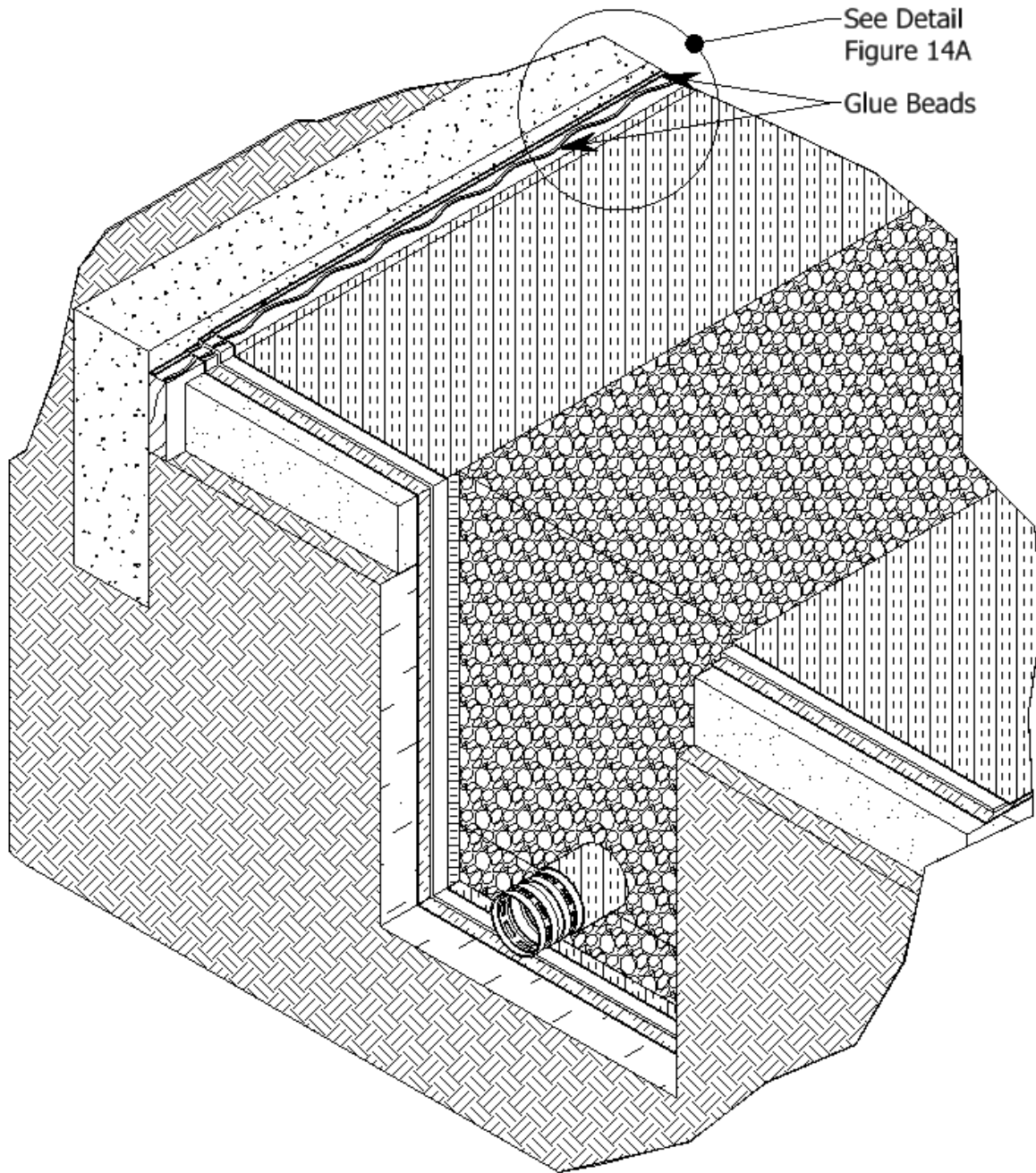


Figure 14XX



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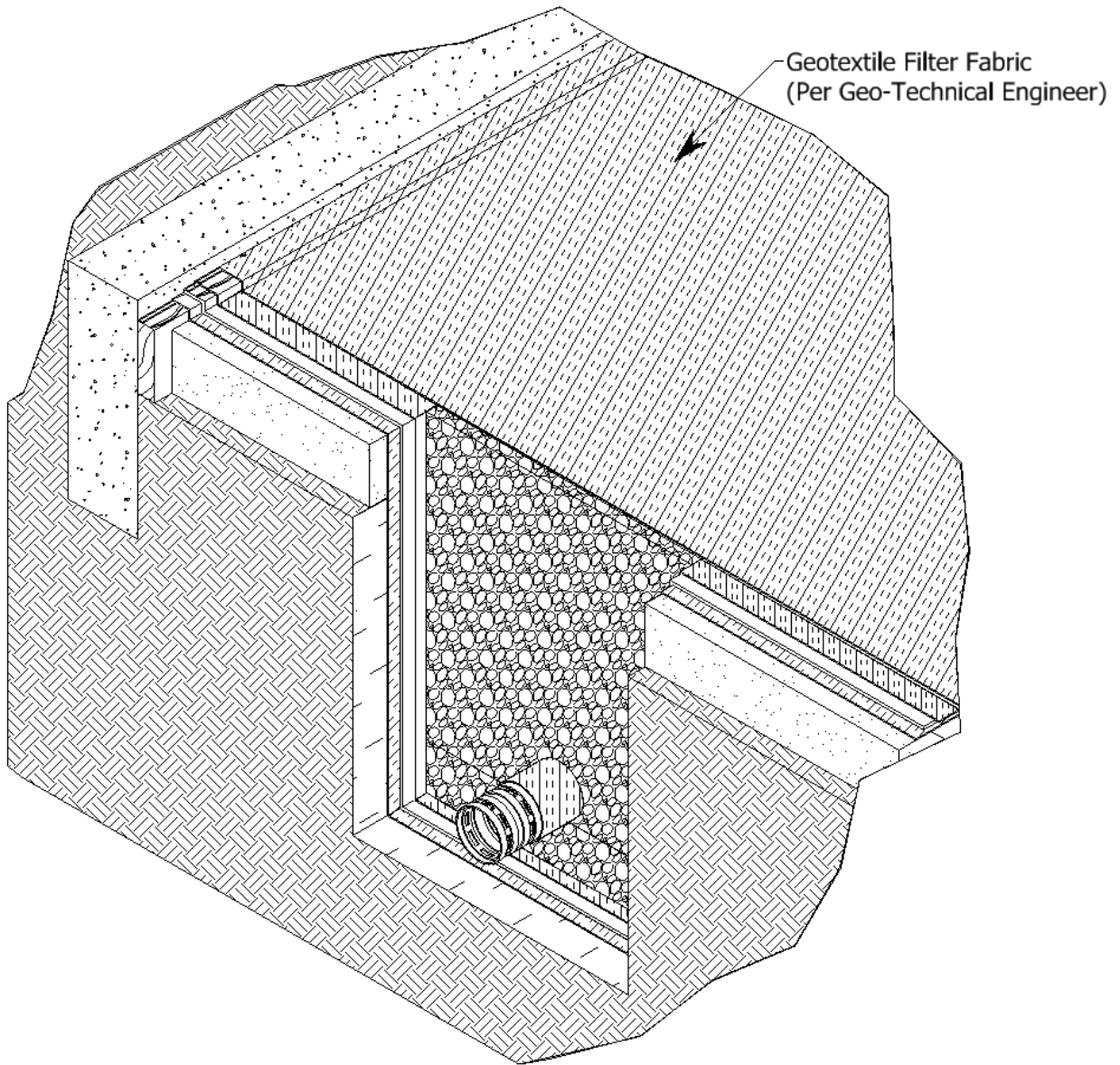


Figure 14



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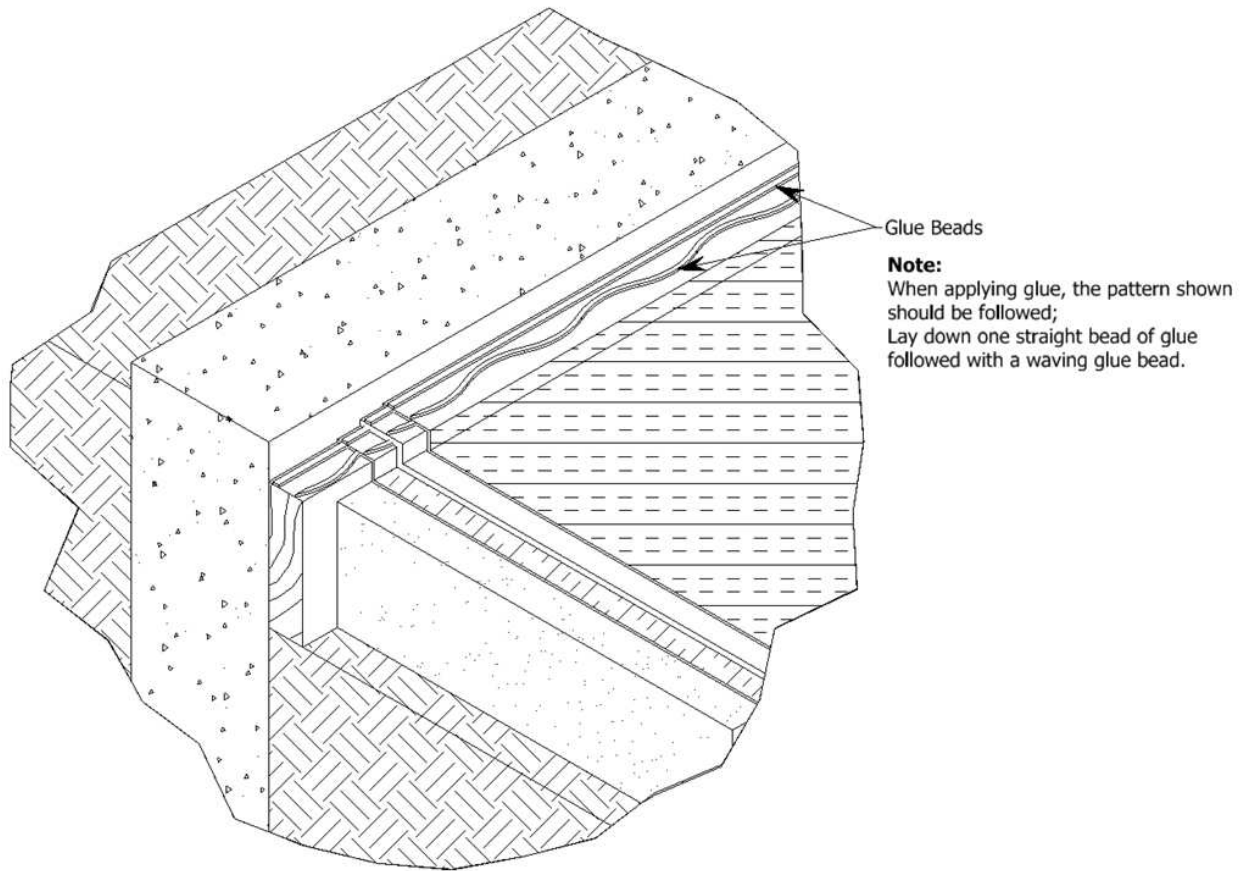


Figure 14AXX



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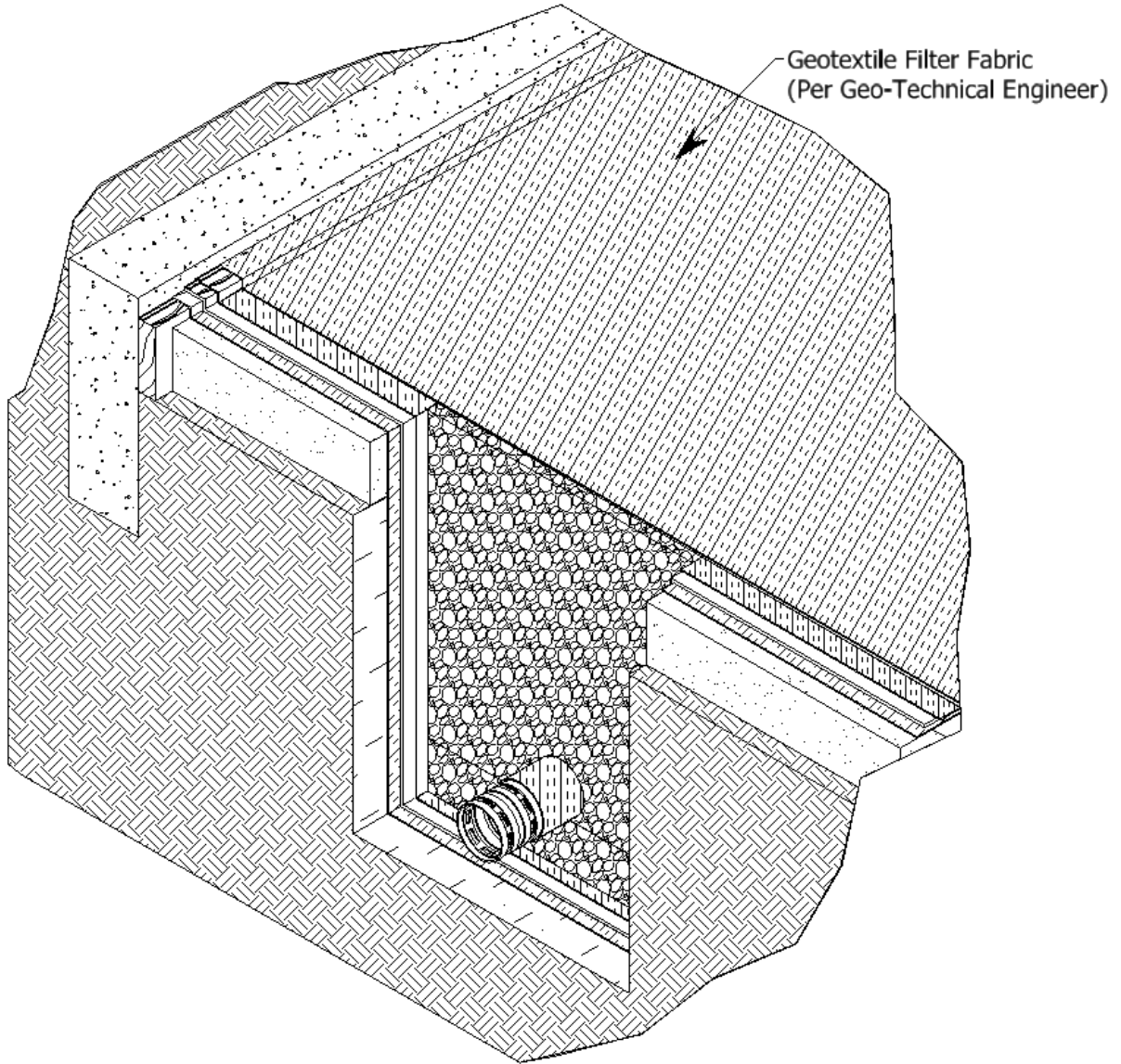


Figure 15XX



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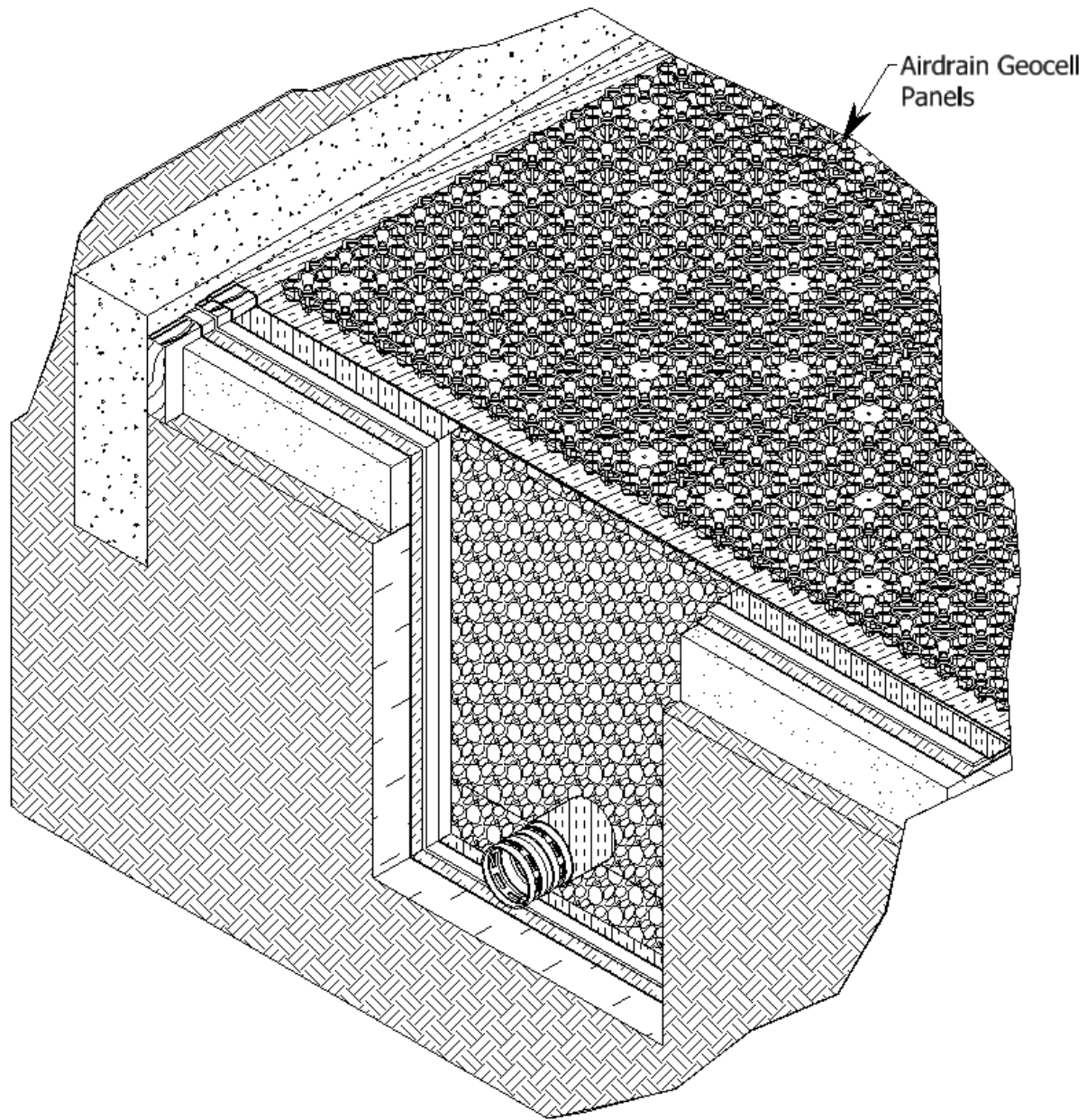


Figure 15



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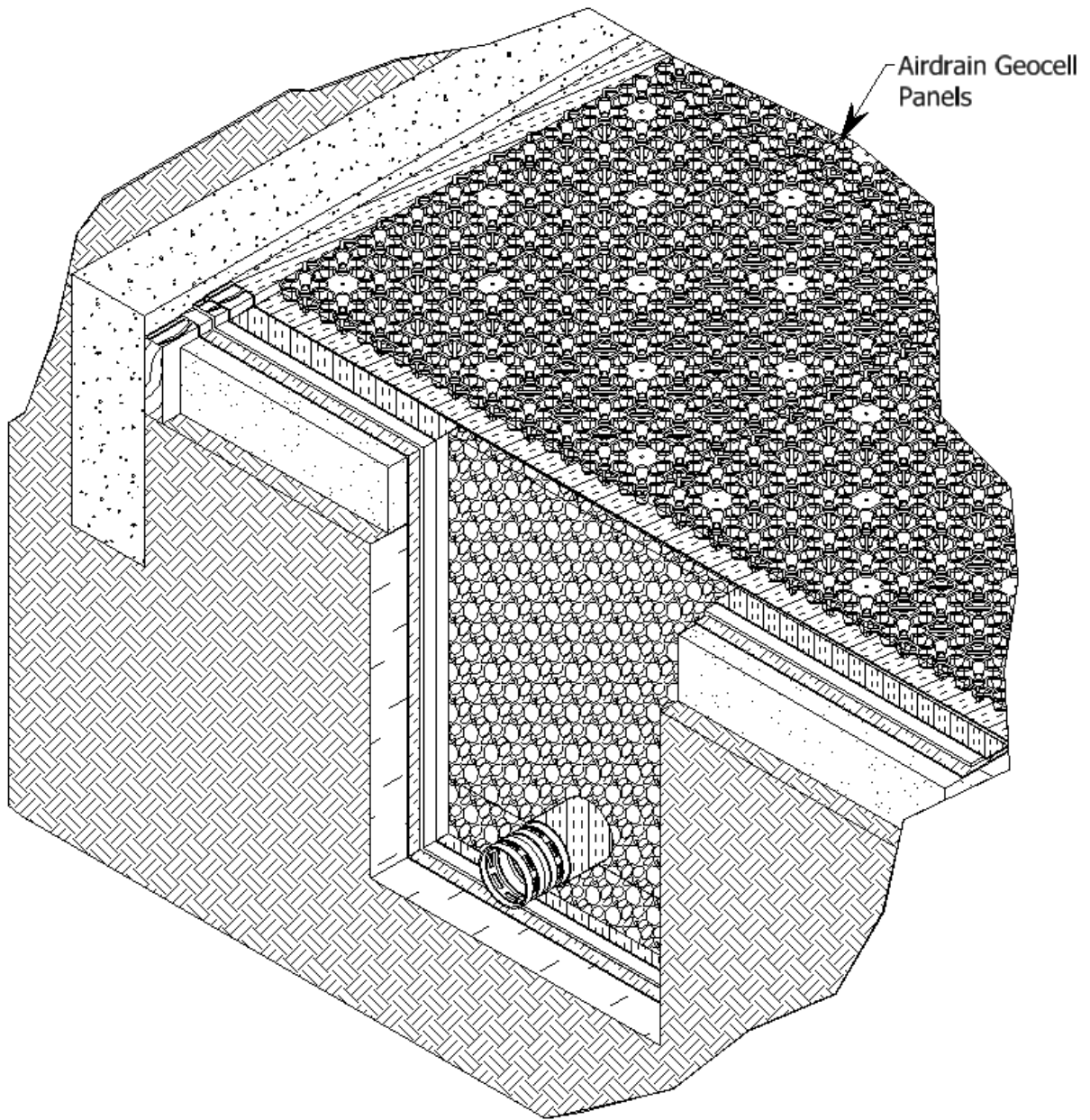


Figure 16



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# Airdrain® Geocell

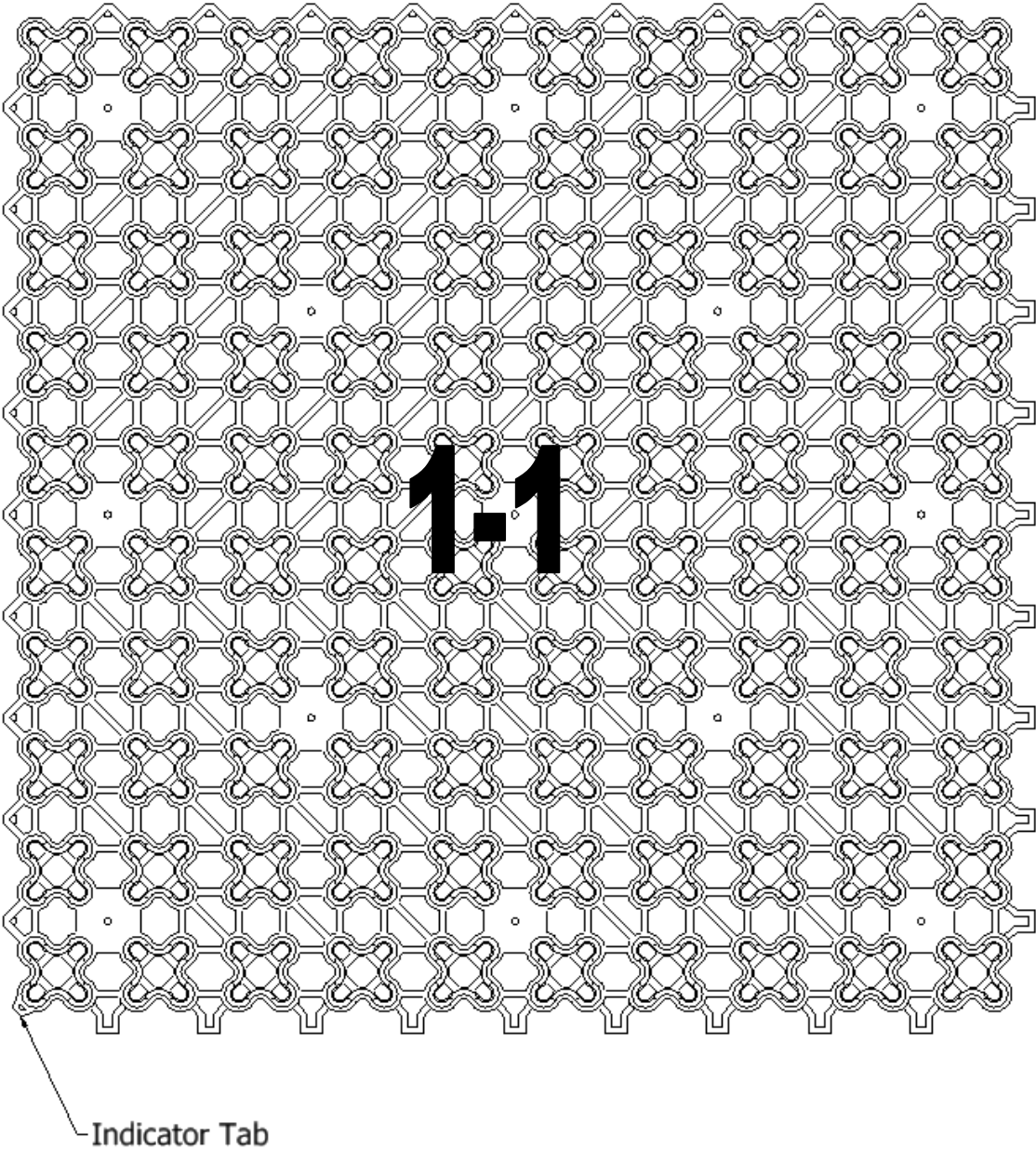


Figure 17



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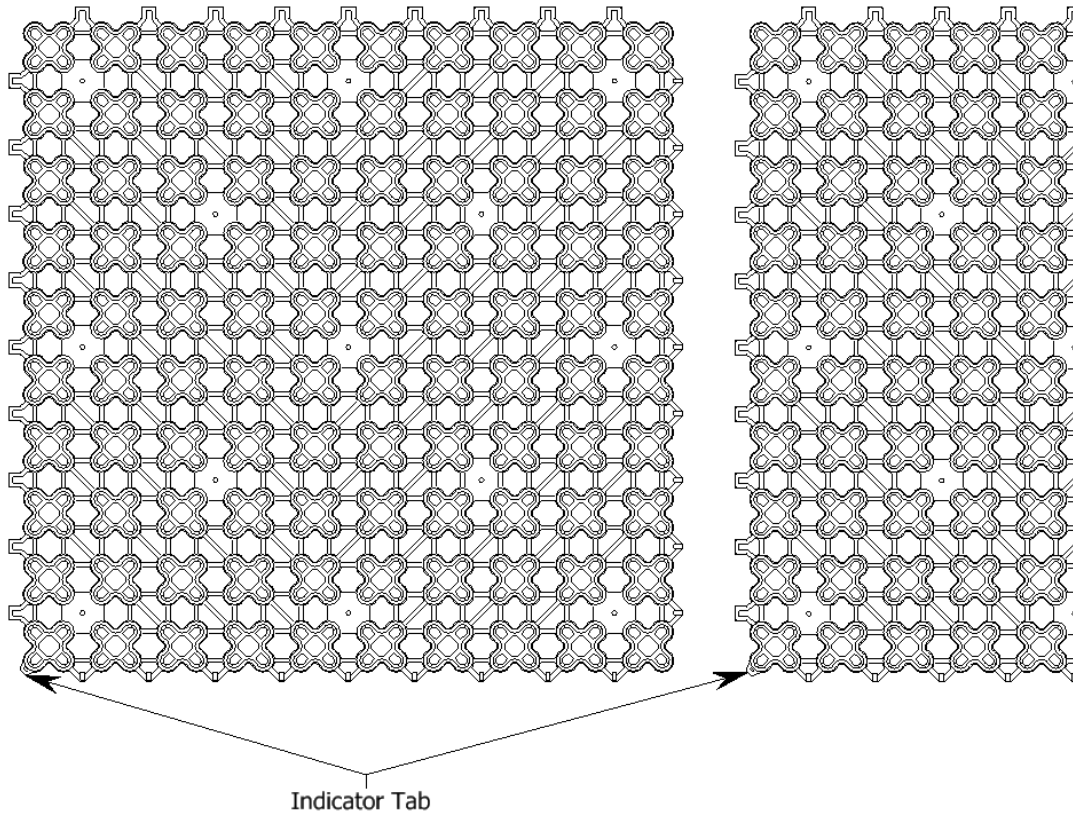


Figure 18

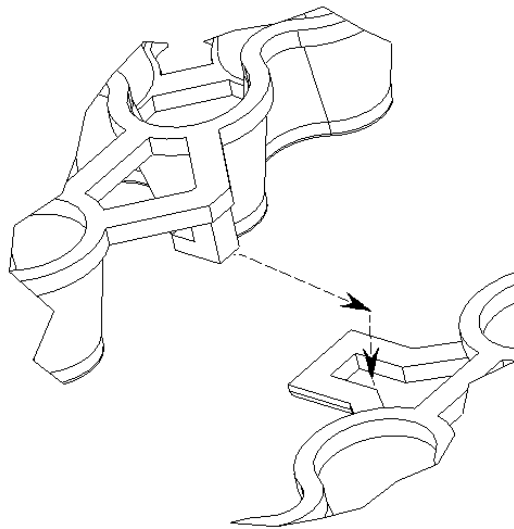


Figure 18B



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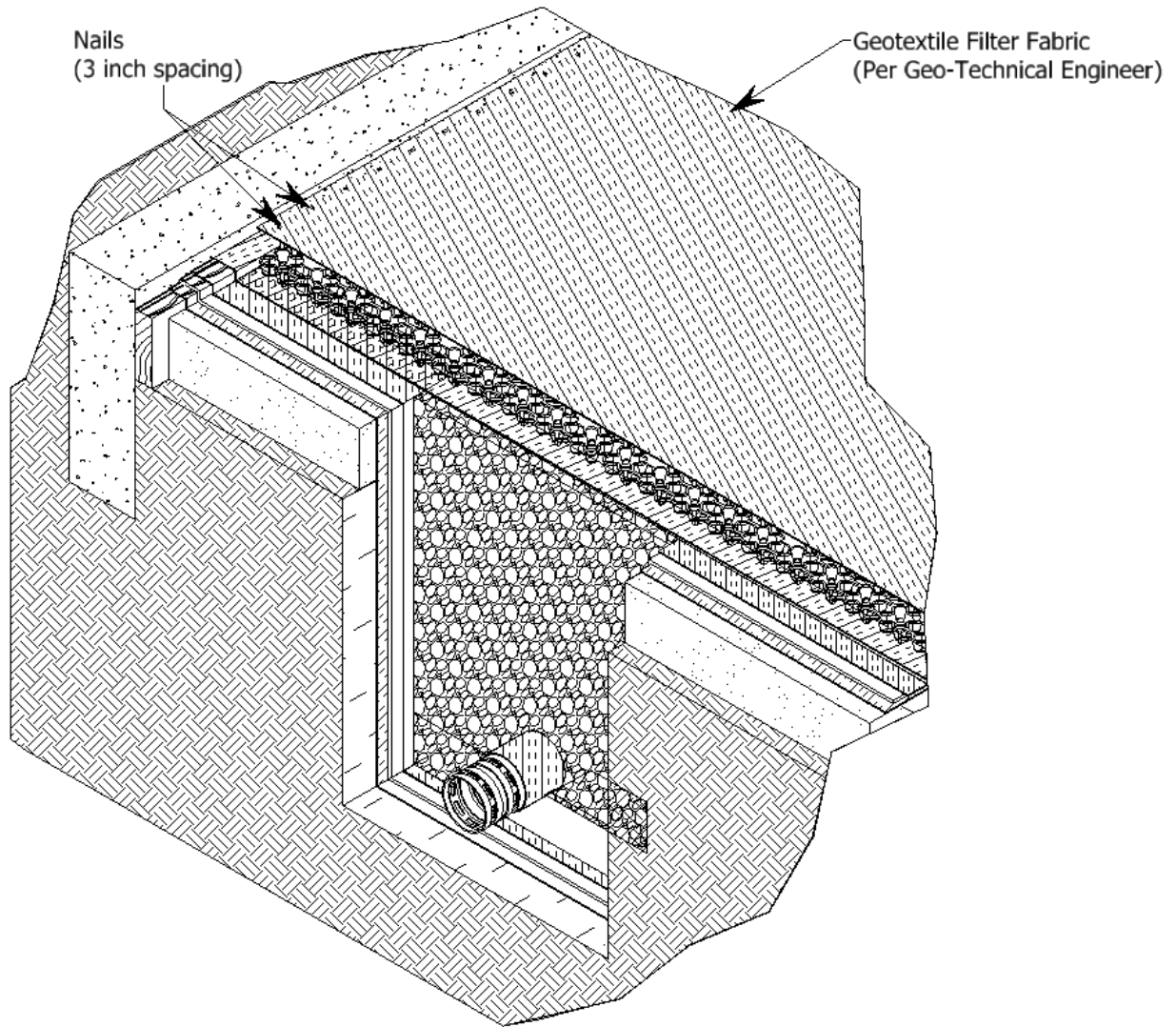


Figure 17



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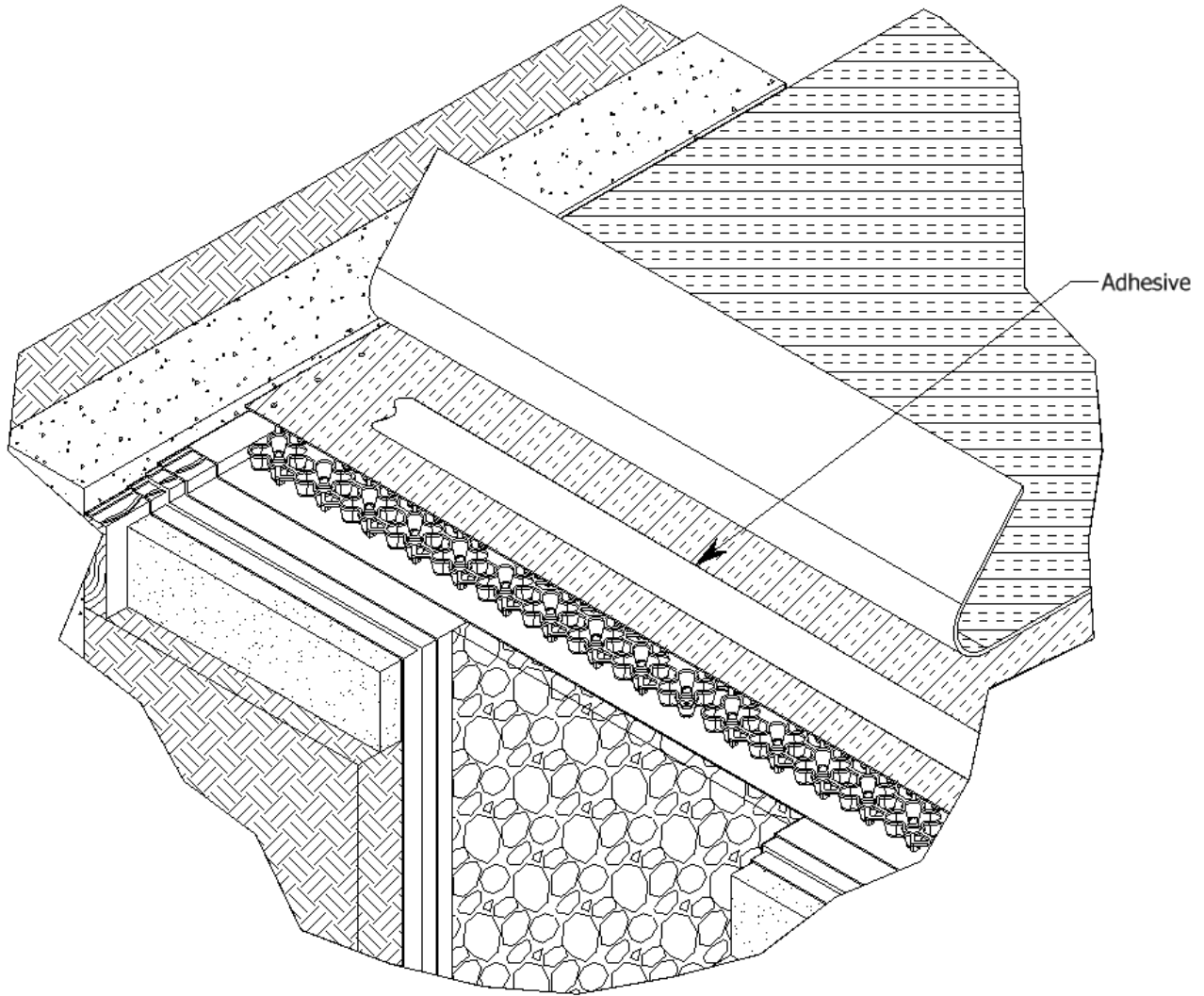


Figure 18

