

INSTALLATION GUIDE, ROADRAIN-T SYNTHETIC SUBSURFACE DRAINAGE LAYER (SSDL) - UNDER PCC

Delivery, Storage and Handling:

1. The installer shall check the material upon delivery to verify that the materials received are the proper type and grade.
2. Roadrain-T shall be handled in such a manner as to ensure it is not damaged in any way. Appropriate equipment shall be employed when off loading and handling Roadrain-T.
3. Roadrain-T shall be stored in a clean and dry environment, off the ground and out of direct sunlight and shall be protected from excessive heat, cold, mud, dirt, and dust.

Preparation for Placement:

Roadrain-T is suitable for new construction over prepared base or for rehabilitation projects over existing PCC or HMA pavements. Instructions for installing Roadrain-T over both surfaces are described within.

1. Over prepared base

1.1. The engineer shall verify that the surface of the area to receive the Roadrain-T is smooth and well compacted, with no voids or humps, and has the proper design grade that slopes towards the edge drain or other water collection structure as shown in figure 1. If no edge drain or water collection structure is present, one must be added.

1.2. Weak areas in the base where depressions or water pumping is observed should be excavated and replaced with engineer approved fill material to ensure a non-yielding surface beneath the Roadrain-T.

2. Over existing pavements (HMA or PCC)

2.1. The surface of the existing pavement should be made smooth. Any large voids, ruts or potholes should be patched with engineer approved material and leveled with the surrounding pavement surface. Heaves or bumps must be removed or repaired and leveled with the surrounding pavement surface.

2.2. The engineer shall verify that the surface of the existing pavement is properly prepared and sloped in the direction toward the edge drain or other water collection structure as shown in figure 1. If no edge drain or water collection structure is present, one must be added.

2.3. Just prior to placement of the Roadrain-T, an asphalt distributor truck should be employed to apply an AC type tack coat to the existing prepared pavement at a rate not to exceed 0.4 gal/sy.

Typical Edge Drain

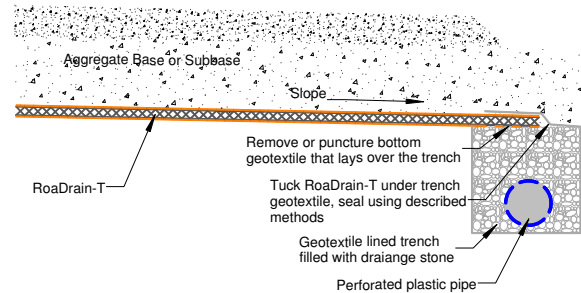


Figure 1: Typical Edge Drain Detail

Handling and Placement

1. Roadrain-T should always be handled with proper equipment and care so as to prevent any damage such as cuts, tears or punctures.
2. Place and position the rolls in the proper manner at the elevations and alignment as shown in the construction drawings and as directed by the Engineer.
3. Whenever possible, Roadrain-T should run parallel to the direction of the roadway as shown in figure 2.

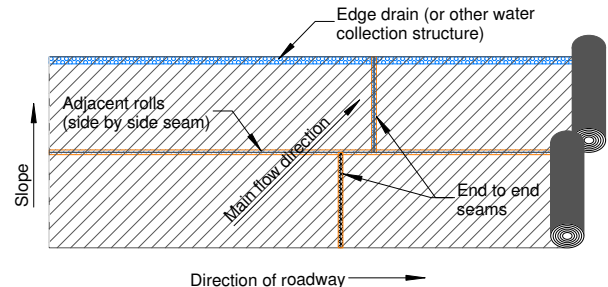


Figure 2: Typical Panel Layout

4. Steps should be taken to prevent the leading edge of the material from curling up by securing it to the base with weights or steel pins.
5. To prevent wrinkles maintain proper tension and alignment when unrolling Roadrain-T. Drainage cores of adjacent rolls and end to end rolls should touch along their length. Gaps and/or overlaps between panels should be avoided. See figures 3 & 4.
6. WHEN INSTALLED OVER EXISTING PAVEMENTS, Roadrain-T shall be unrolled over the freshly applied tack-coat. Once the rolls are properly aligned and seamed, 2 passes with a static drum roller should be performed to create adhesion between the Roadrain-T and the tack coated surface.

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Seaming:

1. The fabric filters are wider than the drainage core. These “flaps” ensure ample fabric is available for proper seaming. Be sure to follow proper seaming methods to ensure continuity of flow and prevent particles from entering the drainage core.
2. To prevent movement and maintain alignment, cores of adjacent panels (side by side rolls) should be tied every 5ft along their length with plastic cable ties and every 2ft along their width (end to end rolls). Cable ties should have a minimum tensile strength of 50 lbs. Steel pins, such as those used to secure dowel baskets, may also be used to nail the panels in place if the subsurface allows.
3. The flaps on adjacent panels shall be tucked and overlapped as shown in figure 3. End to end rolls and cut rolls (no geotextile flap) will require a separate strip of nonwoven geotextile be placed over the seam as shown in figure 4.

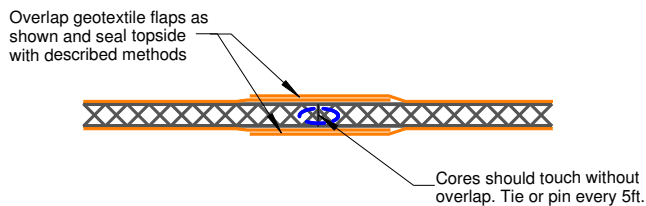


Figure 3: Seaming Adjacent Rolls Along Their Length

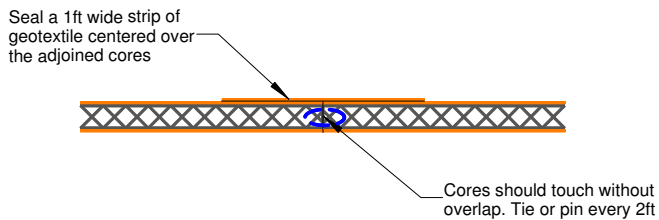


Figure 4: Seaming Rolls End to End

4. Overlaps and strips of geotextile need to be secure and remain in place for the duration of the fill placement operation. Approved methods include sewing, heat bonding or a spray adhesive such as 3M Hi-Strength 90 or by applying duct tape. If heat bonding is used, care must be taken to not burn through the geotextile
5. RoaDrain-T can be made to fit any width or length by cutting the material. Long cuts are best made with a contractors saw employing an abrasive (non-toothed) blade. Short cuts can be made with a sharp serrated blade utility knife. Cutting exposes the core edge. All exposed core edges (except the edge connected to the edgedrain, see figure 1) shall be wrapped with a strip of geotextile and secured utilizing methods described above.

Repair Requirements:

Prior to paving over the deployed material, each panel shall be inspected for damage. Potential repair techniques will be separated for just geotextile damage and for damage resulting on the entire geocomposite (drainage core damaged).

1. Geotextile damage: Tenax recommends patching small holes with a minimum 8”x 8” geotextile patch adhered with a spray adhesive such as 3M Hi-Strength 90 adhesive. Larger holes may require a larger patch.
2. Geocomposite damage The drainage core is robust and can sustain small cuts and tears with negligible impact on performance. Unless major damage occurs that restricts flow, we recommend repairing only the geotextile as described above. In the event of major damage to the core, the entire roll shall be cut to remove the damaged area and a section from a new roll cut to fit the area. It shall be secured and sealed according to the method described for adjoining rolls end to end. See figure 4.

Concrete Placement:

1. PCC shall be placed as soon as possible on properly installed material. Install only the amount of RoaDrain-T that can be completely paved with acceptable climate conditions for concrete placement. RoaDrain-T should not be left exposed to direct sunlight for more than 14 days.
2. Dowel baskets can be anchored to the base using conventional pins. The pins can be driven through the RoaDrain-T.
3. Spray the RoaDrain-T with fine mist of water just ahead of the paving machine to provide a moist surface for proper curing of the pavement.
4. If required, concrete trucks and tracked pavers can be allowed to operate directly on the RoaDrain-T. Vehicles operating on the RoaDrain-T must do so slowly and in a straight forward or backwards motion. The vehicle operator shall avoid sharp or standing turns and abrupt stops or acceleration.
5. If the plans show multiple pavement lanes, which require two or three separate passes of the paving machine, efforts should be made to prevent joints in the PCC directly over and in line with a seam of two adjacent panels.
6. Ensure that all equipment operating on the RoaDrain-T will have their exhaust directed away from the RoaDrain-T.